

Defined Contribution Plan Dominance Grows Across Sectors and Employer Sizes, While Mega Defined Benefit Plans Remain Strong: Where We Are and Where We Are Going

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- This *Issue Brief* discusses employment-based defined benefit (DB) and defined contribution (DC) pension plans. The number and percentage of individuals participating in private DC plans is increasing relative to the number and percentage participating in DB plans. The total number of participants in all DB plans was 33 million in 1975. Participation increased to 40 million in 1983, and has remained in the 39 million-41 million range since that time. The total number of participants in defined contribution plans increased from 12 million in 1975 to 44 million in 1993.
- Between 1985 and 1993, the net change in the number of primary DB plans was generally greater for plans with fewer active participants. The number of DB plans with 10–24 active participants decreased 55 percent between 1985 and 1993, while the number of DB plans with 500–999 active participants decreased 22 percent. Because most of the decline in primary DB plans occurred in plans with two to nine participants, the decline in the number of employees covered by a primary DB plan was relatively small.
- Research results suggest that, at least for single-employer private retirement plans with at least 100 participants, employers' contributions to DC plans have increased relative to DB plans significantly more than could be explained by employment shifts since 1985. After controlling for the impact of firm size, unionization, and industry composition, the percentage of total contributions devoted to DC plans increased 11 percentage points between 1985 and 1993. While this is an aggregate measure that does not control for the differential impact of various governmental constraints on plan sponsors (e.g., the full-funding limit modifications in 1987), it does provide insight into the degree to which retirement benefits are being financed in increasing measure through the DC approach. A significant portion of this movement may be attributed to DC plans with the 401(k) feature.
- Despite the many changes in government regulation regarding DB plans and the increased prevalence of DC plans, DB plans are still an important part of both the private and public retirement systems. The data in this report show that they are firmly entrenched in large companies and in plans covered by collective bargaining agreements. It is unlikely that many of these plans will be shifted—at least completely—to defined contribution plans.
- During the 1980s and the first half of the 1990s, despite increasing regulatory complexity and cost, reduction in marginal tax rates, increased minimum required contributions for underfunded plans, and tighter maximum contribution limits, large private employers continued to offer DB plans. Policy enacted in the future could provide incentives to encourage sponsorship of DB plans and/or DC plans, or it could discourage plan sponsorship.

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Introduction/ Background

(Employee Benefit Research Institute, 1997; Salisbury, 1996). The real novelty regarding these plans is the extent to which they have attracted legislators,' employees,' and private (and, to a lesser extent, public) employers' interests since the mid-1970s. Also novel is the increasing modification of traditional defined benefit (DB) plans to include features that have typically been associated with the DC approach.

Legislative interest in DB and DC plans began with an array of legislation and regulation preceding the Employee Retirement Income Security Act of 1974 (ERISA), yet none was as comprehensive as ERISA. For example, long-standing provisions of the Internal Revenue Code (IRC) permit and encourage the use of sec. 403(b) tax-deferred annuities for employees of educational and other nonprofit organizations. Along with officially sanctioning many preexisting employment-based plans, ERISA created a new type of DC plan—the individual retirement account (IRA). In 1978, Congress showed further interest in DC plans when it added sec. 401(k) and sec. 457 to the IRC, providing a means for employees to make before-tax plan contributions. Other IRC provisions have since increased the relative attractiveness of two types of preexisting DC plans: employee stock ownership plans (ESOPs) and tax-deferred annuities for educational and nonprofit employees (Allen et al., 1997). Today, legislators continue to show interest, as evidenced in 1996 by the creation of a new type of DC option for small businesses, the savings incentive match plan for employees (SIMPLE) plan.¹

Having existed throughout much of this century, defined contribution (DC) plans are nothing new

While legislators have facilitated the attractiveness and use of DC plans through various regulations, employers and employees have displayed their growing interest through increased usage. Since the 1970s, qualified² DC plans, participants, and contributions have grown as a percentage of the employment-based retirement system. From 1975 to 1993, the number of qualified private-sector DC plans rose rapidly from 208,000 to 619,000, with growth concentrated primarily among smaller firms. Meanwhile, the number of private DB plans declined from 103,000 to 84,000, and recent EBRI estimates project the number to have fallen further, to 53,000, by 1997.³ During 1975–1993, the number of workers participating in a private DC plan increased from 12 million to 44 million, while DB plan participants remained roughly steady at 33–40 million. In the public sector, federal DC plans have grown from 0 percent of plans and participants in 1981 to 20 percent of plans and 30 percent of participants in 1995, and some evidence suggests increased use of DC arrangements among state and local governments as well. Like the growth in number of plans, the growth in DC participants is concentrated primarily among smaller private firms, with DB plans tending to be populated by large participant groups and more prevalent among public and large private-sector employers.

Many issues surrounding the growth in

² Qualified plans are those meeting the requirements of the IRC and associated regulations. For more detail on this highly technical topic, see chapters 3 and 4 of Allen, et al. (1977).

³ The trends in DB and DC plans may be presented in a number of ways. This paragraph refers to the total number of qualified plans, and is taken from information published by the U.S. Department of Labor (1997). Other methods of analyzing these trends attempt to classify plans for sponsors offering multiple plans. Primary DB status will be assigned if participants within a taxpayer employer identification number (EIN) are either all covered by a DB plan only or are covered in approximately the same numbers by a DB and DC plan. See Ippolito (1995) for additional information. Another method of analyzing the decrease in defined benefit plans is to look at the number of plans insured by the Pension Benefit Guaranty Corporation (PBGC). According to their most recent estimates, in 1996 they insured 47,000 single-employer DB plans, down from an all-time high of 112,000 plans in 1985 (Pension Benefit Guaranty Corporation, 1997). The PBGC and the plan termination insurance program it administers are described later in this Issue Brief.

¹ This plan was enacted with the passage of the Small Business Job Protection Act of 1996. For more information, see Kenn Beam Tacchimo and David A. Littell, "Comparing 401(k) Plans with SIMPLEs—Which Is Better for Your Organization?" *Benefits Quarterly (First Quarter 1997): 54–66.*

DC plans are subject to debate. This report represents an effort to clearly delineate these issues and to present related research. First, in an effort to orient newcomers to the field, it identifies the fundamental and typical differences between qualified⁴ DB and DC plans in relation to the current regulatory environment, as well as the types of decisions employers may consider in plan choice. The report then builds on others' analyses and past Employee Benefit Research Institute (EBRI) private plan tabulations to assess the current state of this trend in terms of the types of firms that are being affected by the increased use of DC plans and the number of participants involved. After continuing this prior EBRI time-series analysis, the discussion presents annual plan contribution data as a new way to measure the growth of the DC approach relative to DB alternatives.

The sections that follow discuss some of the most frequently proposed explanations for this trend, identifying the state of research in this area. In addition, it discusses potential policy implications of the increased use of DC plans, focusing primarily on implications for retirement income security. Finally, it delineates legislative and regulatory efforts to amend the current employment-based system, and explores these efforts in terms of their potential impact on the use of DC versus DB plans.

DB and DC Plan Features

Plan Definitions

A DB plan is a retirement plan in which benefits are

calculated according to a formula or rule. Formulas are more common and are usually based on either years of service and a percentage of pay or a negotiated flat-dollar amount (Allen et al., 1997). Benefit levels, as determined by the formula used, are guaranteed as a stated retirement income commencing at a specified age. Although retirement benefits are usually expressed as a

life annuity,⁵ lump-sum distributions are increasingly available.

While similar to DB plans in the provision of a tax-favored vehicle through which savings can accumulate for retirement, DC plans are an altogether different type of employee benefit arrangement. In the majority of DC plans,⁶ contributions are allocated to individual accounts according to a predetermined formula.⁷ Individual benefits are equal to account contributions (less any unpaid loans or withdrawals) and investment returns thereon,⁸ and are usually paid in the form of a lump-sum distribution,⁹ but can also be paid as a life annuity at retirement if the employer offers this option. While DB plans are always designed as retirement vehicles, certain DC plan types and designs have features that resemble capital accumulation plans (i.e., plans used for savings, not necessarily for retirement). Traditionally, DB and DC plans have different features associated with each. For example, DB plans usually pay benefits in the form of life annuities, whereas

⁴ There is a universe of nonqualified plans, such as Supplemental Executive Retirement Plans (SERPS), that are not subject to the same standards as qualified plans. This paper addresses qualified plans only.

⁵ Life annuities provide a payment on a periodic basis for the life of the participant and possibly his or her spouse.

⁶ In sec. 457 plans, a type of DC arrangement available to state and local government employers, individual accounts exist only as accounting devices, not real separate accounts. In actuality, all sec. 457 plan contributions are placed in a common funding pool for the specific plan.

⁷ Although plan contributions may be made on a discretionary basis by the employer, how these contributions are allocated among individual employee accounts must be based on a specified, predetermined formula meeting certain requirements if the plan is qualified. For a discussion of plan qualification, see the section on Qualified Plans on p.5.

⁸ Participants in both DB and DC plans, however, may forfeit some of their benefits if they leave before becoming fully vested (i.e., before earning a legal right to their pension benefits).

⁹ Employers have the legal right to require terminated employees to take lump-sum distributions for amounts less than or equal to \$5,000 in both DB and DC plans. In addition, an increasing number of DB plans are paying retirement benefits in the form of lump-sum distributions (Hewitt Associates, 1992).

Traditionally, DB and DC plans have different features associated with each. For example, DB plans usually pay benefits in the form of life annuities, whereas DC plans typically pay lump-sums.

DC plans typically pay lump-sums. However, one fundamental difference between DB and DC plans exists. Under a DB plan, a formula guarantees the final benefit level; in a DC plan, a formula stipulates how funds are allocated to individual accounts.¹⁰ Because so few fundamental differences exist between plan types, employers have significant leeway to design individual plans tailored to their specific objectives. Recently, an increasing number of employers have used this leeway to combine traditional DB plan features with features usually associated with traditional DC plans, and vice versa. (Many of these arrangements are called hybrid plans, and are discussed later.) As a result, the difference between DB and DC plans is becoming more nebulous.

Qualified Plans

Employers value maintaining qualified plans because of their tax advantages.¹¹ One primary tax advantage for qualified private plans is the deferral of federal income tax on employer contributions and investment earnings until benefits are paid to the employee, who then pays any taxes due. Employee contributions to private DC plans are allowed on a before-tax basis if the plan has a 401(k) feature. This tax advantage applies to public DC plan participants in IRC sec. 457, 403(b), and 401(k) plans. In addition, public-sector DB plans often

require employee contributions, which may be allowed on a before-tax basis. Of all tax advantages accorded qualified plans,¹² deferred federal income taxation on investment earnings until distribution is perhaps

the most valuable, because this feature yields significantly greater benefit accumulations than if investment earnings were taxed annually (Ippolito, 1986).

How DB and DC Plans Operate

Benefit Calculation and Plan Funding

When establishing a DB plan, employers usually choose between flat benefits and pay-related benefits. A *flat-benefit formula* bases benefits on a flat-dollar amount for each year of service recognized under the plan (e.g., \$400 in annual retirement multiplied by years of service).¹³ Pay-related benefits can be divided into two variations, based on the definition of pay. *Career-average formulas* define pay as all earnings during plan participation in order to calculate benefits. *Final average formulas* define pay as only those earnings received during an averaging period just prior to retirement. *Career-average formulas* have two variations. Final retirement benefits can either equal: (a) the sum of a percentage of salary earned each year recognized by the plan (e.g., the sum of 2 percent of annual pay for each year of service) or (b) the average of all annual salaries recognized by the plan multiplied by a percentage (e.g., \$30,000 in average pay multiplied by

¹⁰ There is often a mistaken notion that a DC plan will commit the employer to a specific contribution (typically a percentage of compensation) each year. While this is true of one type of DC plan (a money purchase plan requires the same contribution each year unless the plan is amended or terminated), employer contributions to a DC plan may be made as a percentage of profits, a percentage return on investment or equity, or as a discretionary amount decided annually. Usually DC plans allocate the contribution as a percentage of employees' earnings or savings.

¹¹ Thirty-two percent of respondents report that their company provides a retirement plan to its employees in order to receive favorable tax treatment (Society for Human Resource Management, 1996).

¹² If a DB or DC plan meets the requirements of the IRC and associated regulations, it is said to be qualified and thereby receives the following federal income tax advantages: (1) within limits, employer contributions are deductible as a business expense, (2) contributions are not counted as income to participants (and therefore not subject to federal income tax) until paid in the form of benefits, and (3) investment earnings, including capital gains, are not taxed until distribution. (Allen et. al, 1997; McGill et. al., 1996)

¹³ Flat-benefit formulas are often encountered under collectively bargained plans.

50 percent).¹⁴

Most DB plans retain an actuary to annually assess plan obligations based on the plan's specified formula and to determine the amounts the plan sponsor should place in the pension fund in order to comply with funding requirements. (These amounts are based on the selected actuarial valuation method and appropriate actuarial assumptions.) The plan sponsor is then ultimately responsible for making required contributions as well as ensuring that the fund's assets are invested and benefits are paid; however, these responsibilities are often delegated to third parties. Although it is uncommon, private-sector workers may have the option of contributing to the DB plan as well, but their contributions are not given tax-favored status.¹⁵

Employer contributions made to a worker's DC account are typically based on a percentage of annual compensation. In some types of plans, employees may opt to contribute a certain amount on a tax-favored basis. Employers sometimes make contributions based on the rate of employee contributions, called an "employer match." For example, an employer might fully match an employee's contribution up to the first 3 percent of pay and match one-half of the employee's contribution between 3 percent and 5 percent of pay. Who makes contributions and on what basis—as well as whose contributions receive tax-favored treatment—depends on the DC plan type and design, with several

combinations available.

In terms of plan funding, some types of DC plans do not require fixed annual contributions from employers. Instead, employers are often given more flexibility. For example, contributions can be based on profits or on a discretionary basis.¹⁶

Plan Distributions

Retirement and Job Termination Benefits—As mentioned above, DB plans have traditionally paid benefits in the form of annuities to retirees¹⁷ and those terminating employment with accrued benefits in excess of a particular threshold (currently \$5,000).¹⁸ However, there is some evidence that an increasing number of DB plans are offering lump-sum distributions (Hewitt Associates, 1992). DC plans, on the other hand, traditionally pay benefits in the form of lump-sum distributions to all departing plan participants. However, some DC plans also include an annuity option.

In-service Withdrawals—In-service withdrawals are prohibited in DB plans and in DC money purchase plans,¹⁹ although loans are available in some rare instances. In contrast, profit-sharing DC plan sponsors may permit participants to take loans and/or make in-service withdrawals of plan assets for various reasons.²⁰ As a result, DC plan participants (excluding those in money purchase plans) tend to have more preretirement

¹⁴ Under the latter formula, an employee would receive the same benefit at retirement regardless of the number of years worked (typically subject to some minimum threshold such as 10 years). Under the former, an employee typically earns more benefits for every year of additional service.

¹⁵ Employees' contributions to DB plans are only granted tax-favored status in public plans.

¹⁶ See footnote 7.

¹⁷ Ninety percent of retiring workers participating in a DB plan in a medium or large establishment were not offered a lump-sum distribution in 1993 (U.S. Department of Labor, 1994).

¹⁸ Employers have the legal right to require terminated employees to take lump-sum distributions for amounts less than or equal to \$5,000 in both DB and DC plans.

¹⁹ Although money purchase plans are DC plans, technically they are combined with defined benefit plans for IRC purposes in prohibiting in-service distributions from "pension plans." Most of the other DC plans are instead treated as "profit-sharing plans" by the IRC and allow the plan sponsors to make in-service distributions available as a plan feature.

²⁰ In-service withdrawals from elective deferral contributions made to qualified 401(k) plans are strictly limited to hardship, defined narrowly as "immediate and heavy financial needs," such as those involving certain medical, home purchase, education, or the prevention of eviction or foreclosure needs. For a more detailed explanation of the conditions for hardship withdrawals, see Allen et al., 1997, pages 194–195. For plan years after 1988, distributions from 403(b) arrangements of contributions made pursuant to an employee's salary reduction arrangement and any investment income on such contributions are subject to similar restrictions. See pages 214–215 of Allen et al. for more detail.

DC plan participants (excluding those in money purchase plans) tend to have more preretirement access to their funds. This is one way that some DC plans resemble capital accumulation (i.e., savings) plans more than retirement plans.

access to their funds. This is one way that some DC plans resemble capital accumulation (i.e., savings) plans more than retirement plans.

Assuming Retirement Income Risk

There are many risks associated with participants' assets in retirement savings vehicles:²¹

1. replacement rate inadequacy
2. longevity
3. investment risk
4. inflation risk
5. private plan sponsor bankruptcy risk (for DB plan benefits in excess of Pension Benefit Guaranty Corporation (PBGC)-covered maximums)

Replacement rate inadequacy risk deals with the possibility that the combination of Social Security, employment-based retirement income, and individual savings will be insufficient to maintain the same standard of living a preretiree enjoyed when he or she retires. While in the past, this risk could be caused by financial instability of an employer sponsoring a private pension plan, today PBGC will pay benefits (subject to prescribed limits) for most private DB plans²² whose sponsors are unable to meet plan obligations due to bankruptcy. As a result, plan sponsor bankruptcy risk among private plans today is limited to the risk of losing benefits above the amounts guaranteed by the PBGC, should the employer go bankrupt.²³ No equivalent protection exists for public DB plan participants; how-

ever, it has been suggested that the taxpayer essentially provides the equivalent of plan termination insurance protection for public plans because the plan sponsor often has a direct call on additional contributions from the taxpayer. For DC plan participants, replacement rate

inadequacy risk relates more to both the risk of not contributing enough to the plan to ensure adequate retirement income and to investment risk (discussed below).

The second risk—longevity risk—can be defined in several ways. One definition (Bodie, 1990) defines it as the risk that the retiree will outlive the amount saved for retirement. A primary rationale for paying retirement plan benefits in the form of life annuities is to insure against this risk. Hence, this risk can be insured against through either the DB or DC approach only if benefits are paid in the form of an annuity or if participants effectively self-annuitize.²⁴

The third risk—investment risk—is a relatively straightforward (albeit often misunderstood) concept. While many equate this term with variation in retirement benefits resulting from fluctuations in the financial markets, investment risk may also refer to the risk that investments will underperform the rate of return needed for sufficient retirement income. Indeed, underperformance can arise from down-side fluctuations in financial markets, but it also stems from investing in low-risk assets that do not earn adequate return rates.

While a DB plan offers no direct investment risk

²¹ Bodie (1990) develops the first four and also includes a fifth risk: Social Security cuts. The latter refers to the political risk that the financial problems currently facing the Social Security system may be resolved by cutting back on benefits currently scheduled to be paid. See Olsen, VanDerhei, and Salisbury (1997) for a more complete discussion of this issue.

²² For an exhaustive list of plans specifically excluded from coverage by the PBGC, see pages 278-279 of Allen et al., 1997.

²³ For pension plans ending in 1997, for example, the maximum guaranteed amount is \$2,761.36 per month for a worker who retires at age 65. Hence,

DB plan participants expecting benefits exceeding this amount do bear some risk if their benefits under the plan would have exceeded this amount.

²⁴ An individual can use self-annuitization as a strategy to ensure that he or she does not outlive a particular amount of principal. This may be accomplished by dividing the account balance each year by his or her life expectancy at that point in time and limiting annual consumption to the amount determined by the calculation. This step is typically repeated each year, and the annual amount will vary from year to year depending on investment income and changing life expectancies.

to participants,²⁵ the amount of this risk participants are exposed to under a DC approach is often misunderstood. Many assume that DC investments are risky because asset allocation choices may be subject to wide market fluctuations. However, many DC plan sponsors provide guaranteed investment contracts (GICs) and/or short-term income funds²⁶ as investment options, which guarantee that participants' investments will not decline in nominal or real value.²⁷ While many might assume that these options entail no investment risk for participants because investments are guaranteed, choosing such investments may entail investment risk if the rate of return on these investments is lower than that needed to grow a sufficient retirement nest egg.

The fourth risk—inflation risk—can only be directly addressed by the plan sponsor in DB plans,²⁸ and is perhaps the most difficult to deal with in the private sector. Social Security and many of the public DB pension plans have the perceived resources to commit to some type of guarantee²⁹ that inflation's impact on the purchasing power of this component of retirement income will be mitigated.³⁰ However, private sponsors generally have not been able to cope with this problem other than to hold out the possibility of providing ad hoc increases in pension payments on a somewhat periodic basis.³¹

Plan Choice Considerations

Strategic Use of Plan Types to Influence and Attract Desired Work Force

Because employers have different strategic objectives, the plan type suited to one employer may not suit another. While arguments have been made that one type of plan is better at providing retirement security, few

would argue that, from a strategic business standpoint, one plan or combination of plans is always preferable. Thus, a plan's "pros" and "cons" often depend on the employer's plan sponsorship goals. (See table 1.)

Desired Employee Age

Assuming that potential employees are aware of the relative advantages of different plan types, employers can strategically offer plans in order to attract younger or older, or mobile or less mobile, workers. DB plans favor older workers for three reasons: the value of benefit accruals increases as a percentage of compensation as employees approach retirement age, adverse selection in the annuity markets makes the employment-based group annuities that are often offered through DB plans difficult to purchase individually, and past service

²⁵ There may be second order impacts to consider. For example, a sponsor that has had extraordinarily favorable investment experience in recent years may be more likely to provide future benefit improvements or ad hoc cost-of-living adjustments (COLAs).

²⁶ See chapter 21 of Allen, et al. (1997) for a more complete description of these defined contribution investment options.

²⁷ It should be noted that the provision of a GIC does not necessarily ensure that participants selecting this option will receive the entire amount "guaranteed" by the fund.

²⁸ DC plan participants can address inflation risk in their asset allocation decisions by taking inflation expectations into account when calculating how much to contribute and what rate of return is required.

²⁹ The conventional wisdom that public plans commit to an unlimited guarantee that purchasing power of this component of retirement income will not be eroded by inflation does not appear to be supported in practice. For example, in Stan Wisniewski, Characteristics of 100 Large Public Pension Plans, NEA Research (August 1996), a review of the 100 largest public employee (teacher as well as other public employee plans) finds that almost all such plans either granted COLAs on an ad hoc basis, as an automatic fixed amount unrelated to the actual inflation rate, or as an amount related to the change in the Consumer Price Index (CPI) but capped at some level ranging from 1 percent to 3 percent. Moreover, a number of plans provided for such COLA adjustment only on the original amount of the benefit, i.e., they did not compound.

³⁰ Note that this is not the same as guaranteeing the standard of living will not be impacted. For an interesting discussion of the possible application of this concept to retirement plans, see Merton (1983).

³¹ See Clark, Allen, and Sumner (1983) for a survey of practices among private sponsors.

Table 1
Comparison of Traditional Defined Benefit (DB) with Traditional Defined Contribution (DC) Plans

Strategic Business Considerations	DB	DC
Employees Attracted and/or Most Benefited	Longer-tenure and/or older employees	Shorter-tenure and/or younger employees
Job Tenure Patterns Encouraged	Longer tenure because employees receive greatest benefit accruals at end of long-time service. May lock people into jobs they would otherwise leave.	Although employees receive benefits based on salary, not tenure, may encourage employees to change jobs in order to receive access to lump-sum distribution from retirement accounts.
Influence on Retirement Patterns	Can be designed to encourage early retirement; may financially penalize workers for working additional years beyond the NRA. ^{1,2} May pressure workers who would not otherwise retire to do so.	Cannot be designed to encourage early retirement but instead rewards employees for working additional years. ²
Cost/Funding Flexibility Concerns		
a. Cost variability/risk ²	a. Employer assumes investment and possibly preretirement inflation risk ² and therefore annual plan costs are less predictable. While costs might be higher than anticipated, pension costs in a booming stock market may be zero because of the investment returns on past contributions.	a. Employer assumes none of the investment risk ² on retirement fund assets. As a result, annual costs are more predictable, although the employer cannot take advantage of high stock market or other investment returns on retirement plans assets.
b. Annual funding flexibility	b. However, there tends to be more flexibility as to when employer may meet these costs contributions in DB plans.	b. However, money purchase and some types of profit-sharing plans have less flexibility in when those costs are to be paid. In addition, DC accounts can be designed to entail no employer contributions at all, unlike DB plans.
c. Termination benefits	c. Termination benefits are usually small for employees with less job tenure.	c. Termination benefits equal account balances, when vested, based on both salary and years of plan participation. Tend to be larger than those for DB plans, <i>cet. par.</i>
d. Plan termination	d. Can be very costly if plan is underfunded.	d. Not applicable, because DC plans are by definition never underfunded
e. Administrative costs	e. Managing a large pool of funds is less expensive than managing individual accounts, ² but may be more expensive because of the provision of annuities (which can be relatively complex to administer) and the need for professional actuarial and investment advice to ensure compliance with regulations.	e. While actuarial services are not required to the extent necessary for DB plans, the provision of participant investment education and the cost of administering many individual funds for loans, hardship, and/or retirement benefits may make DC plans more expensive. Generally, however, DC plans are less expensive to administer, especially for smaller employers.
Administrative Complexity	More	Less
Integration with Social Security Benefits ²	Employers fulfill a specific retirement income objective (e.g., to replace 60 percent of preretirement income with Social Security and pension benefits), and therefore Social Security integration is accomplished more efficiently under DB plans. ²	Integration can be accomplished, but the process focuses on disparity in contributions and does not attempt to target a specific replacement ratio.
Providing Substantial Benefits Over a Short Time Period	Employees can be grandfathered into a new DB system so as to provide special benefits that are not possible under a DC approach (e.g., the quick accumulation of benefits to participants who have not participated in the system for a substantial period of time).	Unless grandfathered into a DB plan, shorter tenure workers leave service with more substantial benefits under a DC arrangement.
Collective Bargaining	Unions prefer DB plans.	Less favored as primary plans by union leaders.
Flexible Benefit Retirement Plan Provision	DB plans cannot be part of a flexible benefit package.	Some types of DC plans (401(k), profit sharing, and stock bonus) may be included in a flexible benefit package.
Company Identity/ Linking Benefits with Company Performance	Investment of pension assets in company stock is prohibited beyond 10 percent of assets.	Employer contributions may be in the form of employer stock so as to tie company performance to retirement funds. In addition, profit-sharing DC plans tie employee productivity to retirement security.

(continued)

Table 1 (continued)

More Philosophically Oriented Considerations	DB	DC
Paternalistic View		
a. Responsibility given to participants	a. Generally do not require employee contributions. ³ Employer says, "Don't worry about your retirement plan. We'll take care of your retirement plan."	a. Employees usually help fund their own retirement accounts. Employer says, "We'll help you help yourself." Participant-directed accounts encourage financial literacy and awareness of savings.
b. Investment risk given to participants ²	b. Employer absorbs investment risk in exchange for investment control. ²	b. Employees absorb investment risk in exchange for potential investment rewards. ²
c. Inflation risk given to participants ²	c. COLAs ⁴ may be provided and are often done so for public plans. Employer may share responsibility for inflation after retirement if ad hoc COLAs ⁴ are used in private plans. ² Employer assumes preretirement risk if DB formula is based on final averages.	c. No room in plan design for COLA ⁴ adjustments. Employees assume risk for inflation both prior to and after retirement. ²
d. Access to funds	d. No preretirement access to accounts is usually provided.	d. Preretirement access to accounts is often provided.
e. Benefit provided at retirement	e. Benefits are usually paid in the form of life annuities.	e. Benefits are usually paid in the form of lump-sum distributions, which the employees may spend as they please.
f. Automatic enrollment	f. Enrollment is automatic.	f. Enrollment is usually not automatic.
Investment Horizons and Expected Impact on Investment Income ²	A DB plan allows the burden of retirement security (including the attendant investment risk) to be spread over a long period of time. In theory, DB plans may be expected to hold a larger percentage of more risky (and higher yielding) investments since their relevant investment horizon spans several decades if the plan is assumed to be an ongoing operation.	A DC plan usually requires employees to invest for their retirement on an individual basis. This may cause them to increase their asset allocation in less risky (and lower yielding) investments to mitigate the impact of market downturns near retirement age. ²
Tax Advantages	In DB plans, only employer contributions are given tax-favored status.	In DC plans, both employer and employee contributions may be given tax-favored status.
Best Use of Employer Retirement Funds	In DB plans, all benefits accrue to retired workers and/or spouses.	In a DC plan, account balances may be inherited by heirs other than spouse on beneficiary's death.
Approach to Informational Parity	Dedicated governance: investment expertise means that those buying and selling pension investment services have informational parity.	Employers sometimes offer participant education to increase informational parity between investors and investment services.
Source: Employee Benefit Research Institute.		
¹ Normal retirement age.		
² Fundamental features of DB and DC plans that cannot be modified without changing the plan into another type.		
³ Exception in state and local plans.		
⁴ Cost-of-living adjustments.		

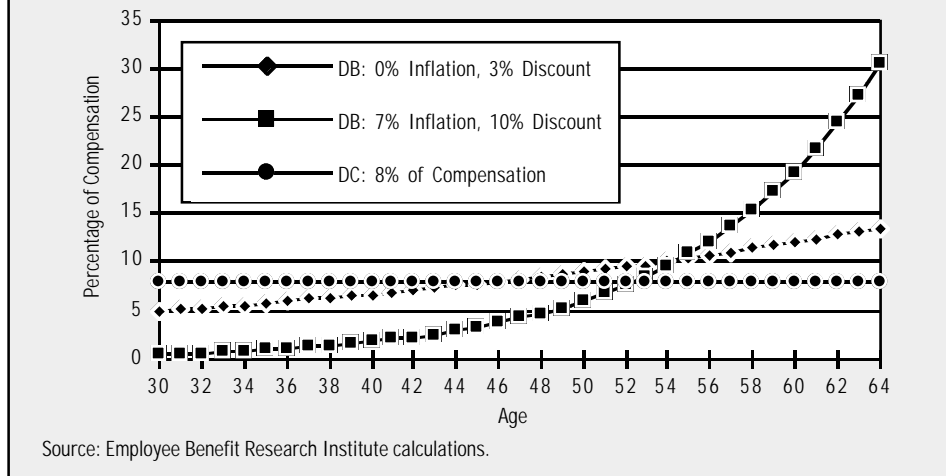
benefits can be awarded to older workers during the start-up of new DB plans.

Chart 1 shows the present value of benefits accrued as a percentage of compensation at various ages. The chart illustrates that it is the nature of a DB plan to provide present values³² that are a significantly higher percentage of compensation for older workers. For

example, assume that a DB plan participant is age 25, is currently paid \$15,000 per year, and will retire at age 65. At that time, he or she will receive a pension benefit equal to 1 percent of average salary during the last five years times years of service. This concept can be illustrated by computing the present value of the pension benefit accrued from working an additional year as a percentage of the participant's compensation at ages 30–64. We will perform the calculations under two sets of assumptions: (a) the participant has no wage growth and the discount rate is 3 percent, and (b) the participant's

³² A present value is the current value of future cash flows discounted at the appropriate discount rate. Additional detail can be found in any corporate finance text.

Chart 1
**Marginal Benefit of Accruing an Additional Year of Pension Service,
 Defined Benefit (DB) and Defined Contribution (DC) Plans**



wage growth is 7 percent and the discount rate is 10 percent. Chart 1 shows the change in the present value of

accrued benefits from an additional year's work (expressed as a percentage of compensation) against the participant's age under both scenarios.³³ It is obvious from the results that the DB pension plan allocates a larger portion of employer contributions to older employees when expressed as a percentage of compensation, and that this phenomenon becomes more pronounced (for final-average plans) when the inflation rate increases.

If, instead, we assumed an employee participated in a DC plan providing a contribution of 8 percent of compensation (i.e., a flat line at 8 percent of compensation, regardless of the employee's age), what conclusions could be drawn about the allocation of employer contributions under a DC plan vis-à-vis those of a DB plan? It is apparent that the DC plan in this instance would be preferred by younger employees. The cross-over point for an employee starting at age 25 occurs at age 46 in the no inflation example and at age 53 when the inflation rate is 7 percent. After that point, the DB plan is more advantageous for the employee and hence more costly for the employer. Everything else being equal, this would imply that older employees would be more costly to retain for employers sponsoring DB pension plans.

A second reason DB plans tend to favor older workers is that they are more likely to offer annuities. Most beneficiaries would find it impossible to purchase an annuity through the private market at the same cost

they could get under an employment-based annuity (Friedman and Warshawsky, 1988).³⁴

Third, for strategic business reasons, such as the desire to attract older workers with special expertise or to please current older workers, employers may seek to provide older employees with a substantial benefit over a short period of time. Current older workers may be grandfathered into a DB plan at its inception by being granted past service credits. These credits allow them to retire with substantial benefits without having to participate in the system for the amount of time it would normally take a younger worker to earn those same benefits. DC arrangements do not offer similar mechanisms by which older workers can accumulate benefits quickly.³⁵

Desired Employee Tenure

Chart 2 shows that final-average DB plans penalize job change. If there is no variation in benefit formulas between plans (e.g., they all offer 2 percent of final-average compensation per year of service), then a worker who is employed by several employers will receive a sum of retirement benefits from the various plans that will be smaller than if he or she had been consistently covered by one sponsor. As a result, DB plans encourage employees (especially older ones) to continue service until reaching the plan's normal or early retirement age. On the other hand, mobile workers who are covered under various DC arrangements and who roll over their full

³³ The assumption in the calculations provided below is that all participants will survive to age 65 and live exactly 17 more years. Moreover, the pension benefits will be paid at the beginning of each year. Although a much higher degree of technical precision is obviously required for actuarial valuations, the assumptions make the example more tractable and do not modify the implications that would be obtained from a more realistic set of assumptions.

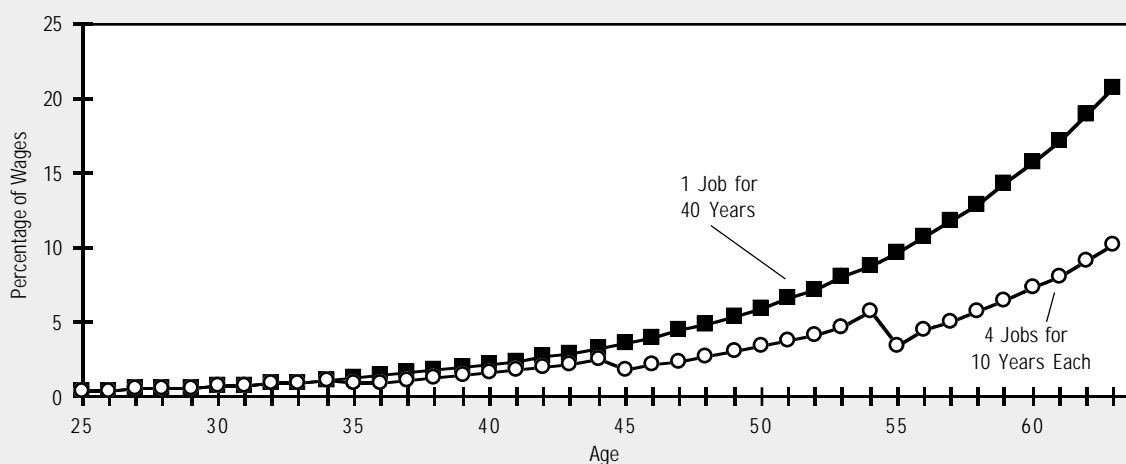
³⁴ Were older employees simply given a lump-sum, the amount of money that the employer spent in providing his or her defined benefits, most retirees

would not be able to afford an equivalent annuity in the private market. This is because of the adverse selection experienced in the private annuity market as opposed to risk-pooling that can be achieved through group purchasing (i.e., covering all of a DB or DC plan sponsor's retirees).

³⁵ An exception to this general rule is an age-weighted DC plan that, within limits, attempts to mimic the benefit structure of a DB plan. See Campbell (1996) for additional details on this type of plan.

Chart 2

Comparison of the Marginal Change in Benefit for One Employee with 40 Years Service in One Final Average Defined Benefit Plan and a Similar Employee With 10 Years Service in Four Identical Final Average Defined Benefit Plans^a



Source: Employee Benefit Research Institute simulations.

^aThe marginal change in benefit as a percentage of pay is the annual change in the present value of a deferred annuity for an employee in a final pay plan that pays an annual annuitized benefit of years of service times 1 percent of final pay. The present value of the deferred annuity is based on the annuity purchase price of 8.60 and a discount rate of 8 percent. Wages for both employees are assumed to increase 5 percent annually.

benefits to another qualified plan or an IRA when changing employers may receive the same retirement benefits as workers covered under one plan for their entire careers. This explains why DC plans are often said to be more “portable” from job to job than DB plans. Employers might wish to implement a DB approach to encourage employee tenure, especially if the employer believes long-term employees make special contributions that are not reflected in wage payments. These include the fostering of loyalty to the firm and its traditions and the transmission of technical skill from older to younger generation workers (McGill et al., 1996). In addition, long-term workers may lower employers’ expenses for recruiting and training new employees. A potential downside to this scenario is that workers who would rather leave the employer—and whom the employer would prefer to see leave—may be influenced to stay until reaching the plan’s early or normal retirement age.

Because they are more portable, DC plans do not provide financial incentives to encourage longer job tenure.³⁶ Because the accrual curve is typically flat across age groups,³⁷ employers can contribute the same percentage of compensation for two employees with the same earnings, despite any age or tenure differences. In

addition, the lump-sum distributions that DC plans tend to offer more frequently than DB plans may actually encourage some workers to terminate employment in order to access their retirement funds (Ippolito, forthcoming). Assuming the same relative generosity in benefits, even if younger workers were offered lump-sum distributions through a DB plan, the amounts distributed would often be smaller because of the nature of benefit accruals for younger employees (chart 1).

Early Retirement Considerations

DB and DC plans differ in the way they strategically influence the work force in terms of encouraging early retirement. First, early retirement may be preferable in an environment of downsizing, because employees can “elect” to take early retirement benefits instead of being displaced. Early retirement benefits may reduce the need to displace workers while simultaneously preventing the negative publicity and lowered worker morale that can accompany downsizing (Kelly, 1996). Second, employers can deal with older workers who have lost productivity in three ways. First, employers can displace (i.e., fire) them. However, old-age discrimination laws can create legal repercussions, and terminating older workers after many years of service can have negative implications for worker morale and the company’s public image. Second, pay can be reduced commensurately. However, this too might cause the same negative consequences. Finally, employers can offer early retirement benefits to encourage older workers to retire in an orderly manner that

³⁶ Paul Fronstin found that “workers whose primary pension plan was a defined benefit plan were more likely to expect to stop working before age 65 (23 percent) than workers whose primary plan was a defined contribution plan (18 percent)” (Fronstin, 1997).

³⁷ Age-weighted DC plans are an exception.

does not cause low morale or negative publicity. The most common way to provide these benefits is through a DB plan.³⁸

Plan Cost Considerations

DB plans enjoy several possible funding advantages over DC plans. First, employers may not need to make any annual plan contributions for several years during a booming stock market. This is currently the case with several large corporate pension funds (Dunn, forthcoming). Past contributions plus investment returns alone have been providing sufficient plan funding for some plans for more than a decade.³⁹ Another funding advantage of DB plans is their ability to provide employers more flexibility than some DC plans (such as money purchase plans) in terms of when required plan contributions must be deposited. In addition, neither participant investment education nor administration of preretirement withdrawals from individual accounts is a possible expense under a DB approach. Finally, because significant benefits (as a percentage of compensation) are not accrued under a DB plan until after a certain age (see chart 1), the employer's cost when a younger worker leaves the firm is usually smaller than the lump-sum distributions that would be offered from a DC plan.

DC plans also enjoy some unique cost advantages. First, while qualified DC plans are required to meet certain tests,⁴⁰ they are not required to pay an actuary to annually assess plan obligations and assist with federal regulation compliance. Another primary advantage is that employer expenses as a percentage of compensation (as opposed to amounts contributed) are much more predictable under a DC approach.⁴¹ Just as an employer may have pension funding obligations lightened or eliminated by a temporary boom in the financial markets, an employer may be hit with large funding obligations during years that investment performance is poor and in which there is no credit balance in the funding standard account to serve as a buffer.⁴² Moreover, future DB plan obligations hinge on future investment returns. The uncertainty of annual

plan costs inherent in the DB approach is especially troublesome for businesses with very uncertain profit margins, which tend to include the majority of small and new firms.

In addition to the foregoing cost advantages of DC plans, terminating an underfunded DB plan can be prohibitively costly,⁴³ and DC plan sponsors do not pay insurance premiums to the PBGC. Finally, the joint-and-survivor group annuities paid by traditional DB plans sponsors⁴⁴ are more expensive to administer than the lump-sum distributions more often paid under traditional DC plans.

Administrative costs are the most determinable

³⁸ One of the more common methods of providing these benefits is through so called "bridge benefits" that will pay retirees a temporary additional benefit from the sponsor's plan until the individual reaches Social Security retirement age. At that point the bridge benefit is extinguished. For a thorough economic analysis of this and other early retirement provisions offered by private pension plans, see Ippolito (forthcoming).

³⁹ Even if sponsors had wanted to make contributions to fully funded plans, some were prohibited from doing so on a tax-favored basis because the Omnibus Reconciliation Act of 1987 placed a cap of 150 percent of current liabilities over plan assets on the deductible contributions an employer may make to a pension plan. However, 1997 legislation has scheduled this limit to rise to 170 percent gradually. The limit rises to 155 percent for plan years beginning in 1999, 160 percent in 2001, 165 percent in 2003, and 170 percent for plan years beginning in 2005.

⁴⁰ The actual deferral percentage (ADP) test is a mathematical test to determine if a 401(k) plan satisfies the nondiscrimination-in-contribution requirements. If a DC plan involves after-tax employee contributions and/or matching employer contributions, the actual contribution percentage (ACP) test must be met to satisfy nondiscrimination-in-contribution requirements.

⁴¹ Exceptions apply in the case of employer contribution variations caused by offering matching contributions and under true profit-sharing plans.

⁴² Each plan subject to the minimum funding standards must set up and maintain a special account called the 'funding standard account,' which provides a cumulative comparison between actual contributions and those required under the minimum funding standard (McGill, 1996, 596-597.)

⁴³ The cost of terminating an underfunded DB plan equals the entire amount of underfunding.

⁴⁴ Of all private DC plans, only money purchase plans require the offering of a joint-and-survivor annuity at retirement (Allen et al., 1997). Other plans are exempt if the plan provides that the employee's spouse is the beneficiary for 100 percent of the employee's account balance and if the employee does not elect an annuity option from the plan.

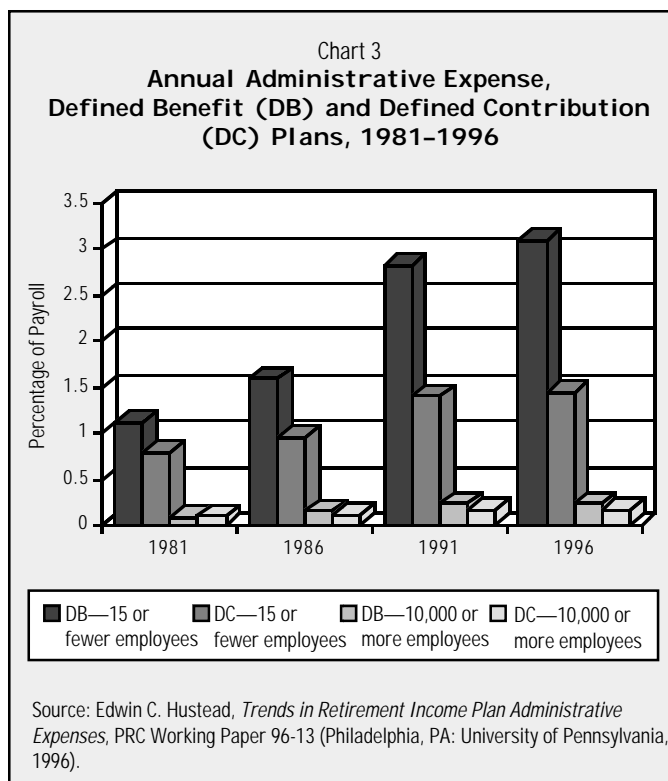
cost differential between DB and DC plans. Chart 3 illustrates how the differential in annual administrative expenses between DB and DC plans has changed over time. While the relative advantage to a 10,000-employee DC plan has remained constant, costs for a 15-employee DB plan have risen from approximately 0.32 percent of payroll in 1981 to 1.66 percent in 1996. However, depending on an employer's objectives, these additional costs associated with a DB plan may be outweighed by the plan's strategic advantages to the employer.

Administrative Complexity

Costs may not be the only administrative complexity about which employers are concerned. First, employers may not be attracted to plans they do not understand. More importantly, from a strategic business viewpoint, employees may not appreciate complex retirement plans unless they can be explained simply. In general, it is much easier for employees to understand a quarterly statement from a DC plan than to understand a DB formula. Also, from an employer's viewpoint, complexity means constraints on behavior, which can be a significant disadvantage in a competitive business environment.

Integration with Social Security

The Social Security program has a redistributive component by which lower earners receive a higher proportion of benefits as a percentage of preretirement income than higher earners. However, everyone pays the same rate of Federal Insurance Contributions Act (FICA) taxes on earnings in order to qualify for Social Security benefits, and employers match the employee contribution. Because the Social Security program is redistributive, when employers fund one-half of a lower paid worker's Social Security benefit, employers are helping to provide a higher proportion of preretirement income than when they match the same proportion for higher-wage earners. Integration allows employers who sponsor their own retirement plan to take credit for the fact that their FICA matches for lower-income workers—although



contributed at the same rate as for those earning higher incomes—“buy” proportionately more generous benefits than their matches for higher earners.

DB and DC plans take different approaches to Social Security integration. Integration under DC plans basically focuses on the disparity in contributions as a percentage of pay for lower and higher paid workers. Although integration is accomplished through a more complicated procedure under DB arrangements, employers seeking maximum integration will often choose a DB approach (Allen et al., 1997).

Another alleged advantage of a DB plan would be the potential to deal with the political risk of Social Security cuts (Merton, Bodie, Marcus, 1987). Theoretically, certain integrated DB plans would compensate for any benefit cuts in Social Security. However, in reality, the ability to compensate is somewhat speculative given that any major structural modifications of the Social Security retirement benefits would likely result in some type of fundamental restructuring of the rules governing the pension integration⁴⁵ allowed by qualified retirement plans. However, to the extent that formulas allowing retirement plan benefits to be reduced by the worker's primary Social Security benefit would still be permitted,⁴⁶ the employer utilizing this approach would be

⁴⁵ For example, IRC sec. 401(l) and the general nondiscrimination rules under sec. 401(a).

To the extent that paternalistic motives do exist, different views on how to help employees save for retirement will lead to different plan types and designs.

implicitly assuming a portion of this risk for the employee.

Other Considerations

One unique advantage of DB plans is their traditional appeal as primary retirement plans to union leaders, who can heavily influence an employer's choice of retirement packages. On the other hand, a unique disadvantage of DB plans is their unavailability for use in *flexible benefit packages* in which employer contributions are fixed and employees are allowed to choose from a range of benefit options. Another disadvantage is that DB plans are prohibited from investing more than 10 percent of the plan's assets in the plan sponsor's securities. Because some DC plans⁴⁷ have fewer company stock constraints, plan sponsors are able to more closely tie employees' retirement benefits to firm performance, which in turn may foster greater company identification and productivity. A final private DB plan disadvantage is that employees cannot contribute to them on a before-tax basis, which they can do under some DC plans. While employees may contribute to some DB plans, they must do so on an after-tax basis.⁴⁸

Philosophical Considerations in Plan Choice

Differing Views of Paternalism

Practitioners often disagree as to whether paternalistic motives play a part in retirement plan sponsorship or plan design. However, to the extent that paternalistic motives do exist, different views on how to help employ-

ees save for retirement will lead to different plan types and designs. For

example, some employers may be willing to assume all plan risk so that employees need not worry about preretirement inflation and investment performance. In such a case, a DB plan is required. Conversely, employers whose objective is to facilitate employees' preparation and responsibility for themselves would be more inclined to choose the DC approach.

Whatever the plan choice in terms of DB versus DC, plan design can be suited to meet the extent of the employers' paternalistic desires, which may or may not be influenced by cost constraints. For example, a DB plan sponsor may seek to minimize the paternalistic role by not providing a final-earnings DB formula (which protects against inflation to the extent wages are correlated with inflation), not providing ad hoc benefit COLAs, and paying benefits in the form of a lump-sum distribution. Alternatively, a DC plan sponsor requires employees to assume all investment risk but may maximize opportunities for paternalism under the plan by establishing extensive participant investment education programs and disallowing preretirement loans and/or hardship withdrawals.

Investment Horizons and Expected Impact on Investment Income

A DB plan allows the burden of retirement security (including the attendant investment risk) to be spread over a long period of time. In theory, DB plans may be expected to hold a larger percentage of more risky (and higher yielding) investments because their relevant

⁴⁶ Although the Merton et al. article was originally presented prior to the introduction of sec. 401(l) into the IRC by the Tax Reform Act of 1986 (TRA '86), it is actually still relevant for a substantial number of DB plans. Prior to TRA '86, many DB plans would implement the integration principle by providing for a gross retirement benefit and then reduce it by a percentage (not to exceed 83 1/3 percent but rarely over 50 percent) of the participant's initial primary Social Security retirement benefit (i.e., neither spousal benefits nor future COLAs would be used to increase the offset). When TRA '86 was passed, some thought that the new statutory offset approach provided in sec. 401(l) would be the standard benefit design for sponsors that continued to

desire this method (see chapter 13 of Allen, et al. (1997) for details on this plan design). However, as pointed out by LaBombarde (1991), depending on the overall demographics of the plans, it is still possible to for qualify a so-called primary insurance amount (PIA)-offset approach.

⁴⁷ Money purchase plans are an exception.

⁴⁸ Public DB plans may allow employees to make before-tax contributions because the tax advantages that provide an incentive to private employers are less applicable to government entities, inasmuch as they are not subject to federal income taxes.

investment horizon spans several decades if the plan is assumed to be ongoing. Conversely, a DC plan usually requires employees to invest for their retirement on an individual basis. Thus, those nearing retirement age may increase their asset allocation in less risky (and lower yielding) investments to mitigate the impact of market downturns.⁴⁹

Perceived Best Use of Plan Assets

Employers (especially those funding a retirement plan) may want to ensure that plan contributions are used most appropriately. Some perceive a retirement insurance (i.e., a traditional DB) approach as the most appropriate use of plan resources, whereas others favor a personal property (i.e., DC) approach. The basic difference between these approaches is whether the perceived best use of plan assets is to use them solely for the benefit of plan participants and/or their joint annuitants (usually a spouse) or whether earned retirement benefits should be bequeathable wealth.

Because traditional DB plans are essentially insurance plans, a worker who lives longer than expected—thereby costing the plan more if benefits are paid in the form of a life annuity—will be cross-subsidized with funds that would otherwise accrue to a worker who dies soon after retirement—thereby costing the plan less. As a result, plan assets benefit only retired workers and/or their joint annuitants (usually spouses) in a DB plan. Some employers perceive this as the fairest approach because it pools risks that are largely unforeseeable for all workers, such as unexpected longevity. In response, some DC plan sponsors have incorporated a more insurance-type approach into their plan packages by requiring group annuitization of retirement benefits.

However, some perceive this insurance approach as unfair, because life annuities cannot be left to a worker's estate.⁵⁰ As a result, employees who work their entire lives to earn an annuity benefit but die early and without a surviving spouse or other joint annuitant will not be able to pass on this accumulated wealth to their

heirs. For example, under mandatory annuitization, a retiring worker with a terminal illness would essentially be forced to relinquish most of his or her earned retirement benefit to the annuity pool instead of having the option of leaving the money to benefit his or her adult children or grandchildren.

Approach to Informational Parity Between Financial Service Consumers and Providers

A final consideration relates to informational parity, which ensures that the buyers and sellers of a product are making equally informed transactions. A plan sponsor's approach to creating informational parity between the buyers and sellers of financial services and the importance assigned to it may influence plan choice. In a single-employer DB plan, sponsors select fund investment managers, whereas in a DC plan, plan participants choose among the investment options provided. To the extent that plan sponsors have a more sophisticated understanding of investment principles than plan participants, more informational parity exists between investment service consumers (e.g., the sponsors) and producers (i.e., financial service providers) in a DB plan. Some employers seek to reduce informational parity differentials that occur between DC plan participants and fund managers by providing participant education (Milne et al., 1995; Milne et al., 1996).

Choosing “Both” DB and DC Plans

Combining features of both plan types can be achieved two ways.

⁴⁹ This assumes that employees are able to direct the asset allocation of their entire retirement portfolio; however, many DC plan sponsors require at least a percentage of the total contributions to be allocated to employer securities. Investing a large percentage of the portfolio in employers' stock increases the risks and is at odds with the modern portfolio theory of prudent investing, which emphasizes appropriate risk diversification.

⁵⁰ This will be mitigated to a certain extent if the participant chooses a joint-and-survivor, refund, or period certain option. See Allen, et al. (1997) for further discussion of these options.

Mixed Retirement Packages

The first way to offer both plan types in one package is simply to offer both a DB and a DC plan. Because these plans tend to benefit different groups of employees, and each plan type has its own advantages, using both plans can sometimes satisfy a wider range of employees and objectives than sponsoring one type of plan exclusively. For example, DC plans can be used to supplement DB plans so that the overall retirement package is more attractive to younger workers, while retaining the DB base for employees nearing retirement age. According to a 1996 General Accounting Office (GAO) report, only 3 percent of employers offering a retirement plan in 1993 sponsored both a DB and a DC plan simultaneously. However, because those offering both plans tend to be larger firms, 43 percent of employees offered any type of retirement plan were given both a DB and DC option.

Hybrid Retirement Plans

Although still relatively rare, hybrid retirement plans are gaining attention (Campbell, 1996) and are blurring the nonfundamental distinctions between DB and DC plan types. While hybrid plans are either fundamentally DB or DC in nature, they combine features of both. Some common hybrid plans include cash-balance plans, age-weighted profit-sharing plans, target-benefit plans, and life-cycle pension plans.⁵¹ The existence of hybrid plans shows that not all benefits and shortfalls attributed to traditional DB or traditional DC plans are inherent in these plans.

Private Plan Trends

Between 1975, when ERISA became effective, and 1993, the latest year for which these data are available, the total number of private tax-qualified plans more than doubled, from 311,000 to 702,000. The total number of participants in these plans, including active

workers, separated vested, survivors, and retirees, rose from 45 million to 84 million over the same period (table 2). Data on active participants in private primary plans show similar trends. The number of active participants increased from 31 million in 1975 to 45 million in 1993.

While the number of private employment-based pension plans and plan participants has been increasing, proportionately fewer of these plans are DB plans. An increasing number of employers have been offering primary and supplemental DC plans as well as an array of hybrid plans. The total number of private DB plans increased from 103,000 in 1975 to 175,000 in 1983, and then decreased to 84,000 in 1993. The total number of private DC plans increased from 208,000 to 619,000 between 1975 and 1993, increasing from 67 percent to 88 percent of total private pension plans.

The number and percentage of individuals participating in private DC plans is increasing relative to the number and percentage participating in DB plans. The total number of participants in all DB plans was 33 million in 1975. Participation increased to 40 million in 1983, and has remained in the 39 million–41 million range since that time. The total number of participants in DC plans increased from 12 million in 1975 to 44 million in 1993.

The trends for active participants in private primary plans are similar to those for total participants.⁵² In 1975, there were 27 million active participants in primary DB plans. This number decreased to 25 million by 1993. Between 1975 and 1993, the number of active participants with a primary DC plan significantly increased, from 4 million to 19 million.

⁵¹ For a thorough description of each of these plan types, see Campbell, 1996.

⁵² There is little difference between the total number of participants and the number of active participants included in DC plans. These participants represent individuals other than active participants who are still included in the plan, such as retired participants, participants who have separated from service and are vested in the plan, or survivors. Fewer individuals remain participants in a DC plan than remain in a DB plan after terminating employment with the plan sponsor because most DC participants receive lump-sum distributions on leaving.

Table 2
Private Pension Plans and Participants
Summary of Private-Sector Qualified Defined Benefit (DB) and Defined Contribution (DC) Plans and Participants, Selected Years 1975-1993

	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1997
	(thousands)															
Total Plans ^{a,b}	311	489	546	594	603	604	632	718	733	730	731	712	699	708	702	700
Defined benefit ^a	103	148	167	175	175	168	170	173	163	146	132	113	102	89	84	53
Defined contribution ^a	208	341	378	419	428	436	462	545	570	584	599	599	598	620	619	647
Defined contribution as percentage of total	67	70	69	71	71	72	73	76	78	80	82	84	85	87	88	92
	(millions)															
Total Participants ^{b,c}	45	58	61	63	69	74	75	77	78	78	76	77	78	82	84	86
Defined benefit ^c	33	38	39	39	40	41	40	40	40	41	40	39	39	40	40	40
Defined contribution ^c	12	20	22	25	29	33	35	37	38	37	36	38	39	42	44	46
Defined contribution as percentage of total	26	34	36	39	42	45	47	48	49	48	48	50	50	52	52	53
Active Participants	31	36	37	37	39	40	40	41	42	42	43	42	43	45	45	25
Primary plan is defined benefit ^d	27	30	30	29	30	30	29	29	28	28	27	26	26	25	25	25
Primary plan is defined contribution ^d	4	6	7	8	9	10	12	13	13	14	15	16	17	19	19	20
Defined Contribution as percentage of total	13	16	19	22	23	25	30	32	31	33	35	38	40	42	42	80

Source: Employee Benefit Research Institute tabulations and estimates based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (Winter 1997) and Pension Benefit Guaranty Corporation, *Pension Insurance Data Book 1996: PBGC Single-Employer Program*, No. 1 (Summer 1997).

^aExcludes single-participant plans.

^bDue to rounding, sums of individual items may not equal totals.

^cIncludes active, retired, and separated vested participants not yet in pay status. Not adjusted for double counting of individuals participating in more than one plan.

^dFor workers covered under both a DB and a DC plan, the DB plan is designated as the primary plan unless the plan name indicates it provides supplemental or past service benefits.

Putting the Past in Perspective

An examination of the change in the aggregate number of private pension plans and participants is potentially misleading because it ignores trends in plans by size. Examining DB and DC plans by plan size allows us to determine the number of participants being affected by trends in plan sponsorship. This section examines private DB and DC plan trends using EBRI and U.S. Department of Labor (DOL) tabulations of 1985 and 1993 Form 5500 annual reports filed with the Internal Revenue Service (IRS). It presents the number of plans and participants in these plans by participant size categories, using various participation definitions. The analysis examines DB and DC plan trends individually and then combines them to evaluate the extent to which a shift from DB to DC plans has occurred.

DB Plans

Examining private primary DB plan trends by plan size shows that the vast majority of plan terminations were very small plans: those with two to nine active participants. Between 1985 and 1993, the net number of primary DB plans decreased by 51 percent, or

86,000 plans. The net number of plans with two to nine active participants decreased by about 56,000 plans, or 65 percent of the total reduction in DB plans (table 3). Some suggest that very small plans were often top-heavy plans used by employers as tax shelters. Enactment of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA), which imposed penalties on top-heavy plans, and the Tax Reform Act of 1986 (TRA '86), which lowered basic income tax rates and imposed faster minimum vesting standards, created less incentive for these employers to maintain their DB pension plans. TRA '86 also included a minimum participation provision that eliminated the tax-qualified status of some small DB plans, primarily single-participant plans. Under this provision, a plan is not qualified unless it includes the lesser of 50 employees or 40 percent of an employer's work force.⁵³ Between 1985 and 1993, the net change in

⁵³ IRC sec. 401(a)(26). The number of single-participant DB plans increased from 9,000 in 1977 to 54,000 in 1985. Data on the number of single-participant DB plans are not available for 1993 due to changes in reporting requirements. However, it is likely that this TRA '86 provision caused many small plans to terminate, particularly plans covering a relatively small number of employers' higher-paid employees (e.g., partners in law firms and accounting firms). This rule was eliminated for DC plans effective 1/1/97.

Table 3
Primary Plan Trends by Plan Size
Primary Defined Benefit (DB) and Defined Contribution (DC) Plan and Active Participant Trends, Selected Years 1985-1993

Active Participants	Primary Plans										Active Participants (thousands)			
	1985	1990	1991	1992	1993	Net Change 1985-1993	Net Change 1992-1993	1985	1990	1991	1992	1993	Net Change 1985-1993	Net Change 1992-1993
	DB Plans													
2-9	88,124	45,796	38,424	34,316	32,121	-56,003	-2,195	353	189	168	147	141	-212	-6
10-24	24,267	15,624	18,095	12,452	10,903	-13,364	-1,549	369	244	273	191	168	-201	-23
25-49	14,178	8,605	7,374	7,745	7,252	-6,927	-494	491	304	255	271	252	-239	-19
50-99	11,303	8,346	8,060	8,114	7,499	-3,804	-615	808	599	585	588	537	-271	-51
100-249	9,534	6,563	6,183	6,290	6,209	-3,325	-81	1,498	1,040	979	995	978	-520	-17
250-499	4,670	3,647	3,514	3,447	3,444	-1,226	-3	1,651	1,293	1,245	1,220	1,224	-427	4
500-999	3,149	2,463	2,328	2,378	2,450	-699	72	2,222	1,751	1,655	1,686	1,751	-471	65
1,000-2,499	2,360	2,090	2,028	2,065	2,122	-238	57	3,636	3,221	3,119	3,180	3,285	-351	105
2,500-4,999	847	798	780	796	790	-57	-6	2,930	2,802	2,704	2,797	2,790	-140	-7
5,000-9,999	455	434	469	445	428	-27	-17	3,141	3,015	3,261	3,033	2,966	-175	-67
10,000-19,999	198	223	219	224	223	25	-1	2,749	3,134	3,134	3,132	3,088	339	-44
20,000 or more	175	161	167	167	167	-8	0	8,985	8,711	8,324	8,073	7,912	-1073	-161
None or None Reported	10,280	18,139	13,944	9,960	9,909	-371	-51	-	-	-	-	-	-	-
Total ^a	169,540	112,890	101,585	88,400	83,517	-86,023	-4,883	28,834	26,303	25,701	25,313	25,091	16,257	-222
	DC Plans													
2-9	199,704	266,129	266,298	270,764	266,284	66,580	-4,480	852	1,127	1,151	1,180	1,165	313	-15
10-24	70,424	97,054	99,188	112,560	112,889	42,465	329	1,056	1,476	1,508	1,737	1,735	679	-2
25-49	31,406	45,737	49,132	54,488	55,094	23,688	606	1,091	1,584	1,695	1,889	1,915	824	26
50-99	17,620	27,446	29,528	32,548	33,835	16,215	1,287	1,224	1,911	2,067	2,273	2,374	1,150	101
100-249	8,878	13,658	13,890	16,187	16,902	8,024	715	1,331	2,071	2,117	2,466	2,572	1,241	106
250-499	2,552	4,144	4,314	5,051	5,187	2,635	136	737	868	1,428	1,488	1,786	1,049	298
500-999	1,195	1,838	1,952	2,242	2,376	1,191	134	808	1,266	1,345	1,532	1,632	824	100
1,000-2,499	784	1,103	1,169	1,332	1,400	616	68	1,194	1,671	1,790	2,028	2,144	950	116
2,500-4,999	219	310	325	355	372	153	17	752	1,072	1,124	1,199	1,272	520	73
5,000-9,999	97	130	126	156	148	51	-8	683	869	850	1,048	984	301	-64
10,000-19,999	34	44	47	50	50	16	0	460	626	644	694	683	223	-11
20,000 or more	29	27	31	40	35	6	-5	1,100	1,151	1,361	1,704	1,518	418	-186
None or None Reported	13,082	40,473	40,067	34,855	37,970	24,888	3,115	-	-	-	-	-	-	-
Total ^a	346,014	498,093	506,066	530,627	532,542	186,528	1,915	11,420	16,251	17,141	19,486	19,779	18,359	293

Source: Employee Benefit Research Institute tabulations of 1985, 1990, 1991, 1992, and 1993 Form 5500 annual reports filed with the Internal Revenue Service.

^aTotal may not equal the sum of individual items due to rounding.

Between 1985 and 1993, the number of private primary DC plans increased by 54 percent, or 187,000 plans. However, most of this increase was in plans with two to nine active participants.

the number of primary DB plans was generally greater for plans with fewer active participants. The number of DB plans with 10–24 active participants decreased 55 percent between 1985

and 1993, while the number of DB plans with 500–999 active participants decreased 22 percent. Changes in individual plans' demographics account for some of the change in the number of plans by plan size. For example, a plan that had 400 participants in 1985 may have had 600 participants in 1993. The number of large primary DB plans remained relatively stable between 1985 and 1993. In fact, the number of plans with 10,000 or more active participants increased 5 percent.

Because most of the decline in primary DB plans occurred in plans with two to nine participants, the decline in the number of employees covered by a primary DB plan is relatively small. Approximately 80 percent of active participants in primary DB plans in 1993 were in plans with 1,000 or more active participants. Even if the 70,000 plans with fewer than 1,000 participants in 1993 were to terminate, 80 percent of active participants with primary DB plans would continue to accrue benefits in their pension plans, while 20 percent of DB participants (5 million) would have their pension benefits frozen. Many of these latter employees would still be covered by an existing DC plan or contribute to another retirement arrangement.

DC Plans

Between 1985 and 1993, the number of private primary DC plans increased by 54 percent, or 187,000 plans. However, most of this increase was in plans with two to nine active participants. The net number of such plans increased by 67,000 plans, or 36 percent of the total increase in primary DC plans (table 3).

The net increase in the number of primary DC plans is smaller as plan size increases. Primary DC plans with 10–24 active participants increased by 42,000 plans, while plans with 100–249 active participants increased by 8,000 plans. The increase in primary

DC plans with 1,000 or more active participants was 800 plans, or 3.3 percent of the total increase.

Much of the growth in DC plans has been through primary and

supplemental 401(k) plans. Unlike some other DC plans, these plans generally require employee contributions as a condition of participation, and it is often up to the employee to decide how much current pay to defer (within plan and legal limits). Many 401(k) plan participants also receive employer contributions that match all or a fraction of the employees' contribution. In 1993, 62 percent of 401(k) participants were in plans to which the employer contributed (Yakoboski, 1994). These DC plans, while providing an effective means for individuals to save, require individuals to take more responsibility in their retirement planning than they would take in DB plans. Between 1984 and 1993, the number of 401(k) plans increased from 17,000 to 155,000, or from 4 percent to 25 percent of all DC plans, representing 22 percent of all private-sector pension plans.

Interpreting the Trends

Previous research in this field has concentrated on either the change in the number of DB and DC plans or the number of participants. This section reviews the relevant literature and then suggests an alternative approach to measuring the extent to which plan sponsors may have moved from the DB approach to one or more DC approaches in providing retirement income to their employees.

Number of Plans

The trends in the number of DB and DC plans may be analyzed either in the aggregate on a time series basis or by examining individual sponsors for evidence of direct substitution. As an example of the first method, Warshawsky (1995) uses IRS statistics on determination letters to analyze the growth of both qualified DB and DC plans, and concludes that the recent trends are even

more dramatic when compared with longer-term secular trends. For example, his figures show that the net growth (defined as formations less terminations) of both types of plans accelerated from 1960 to 1973. This was followed by slow or negative growth in the next four years, presumably as a result of the severe recession in 1973–1975 and the impact of ERISA in 1974. Positive growth of both types of plans resumed in 1977; however, growth in DC plans clearly began to dominate that of DB plans. By 1989, the growth of DB plans turned negative and remained in that status until 1994 (the most recent year for which data are available). In 1990, there were actually more terminations of DC plans than formations. This result was reversed a year later; however, the annual net growth of DC plans has remained far below the levels achieved in the 1980s.

Perhaps the major contribution of Warshawsky's study is his time series regression analysis of the determinants of the net growth of pension plans by plan type from 1960 through 1992. He concludes that external as well as economic forces impact these trends. Specifically, he finds that net business formation, bond yields, and marginal tax rates are important factors explaining DC plan growth, and that excess medical inflation and possible real earnings growth and marginal tax rates are factors in explaining DB plan growth.

There are two methods of addressing whether there has been direct substitution of DC plans for DB plans. Using the first method, Papke, Petersen, and Poterba (1993) found only one sponsor in their sample of 43 plans that reported a DB termination as a result of introducing a 401(k) plan between 1986 and 1990. The other method involves meticulous matching of plan information for more than 10,000 distinct sponsors for various time periods. Papke (1996) compared pension plan offerings by DB plan sponsors in 1985 with their offerings in 1992 and found evidence that 401(k) and other DC plans were substituted for terminated DB plans.

Between 1985 and 1993, an inverse relationship existed between the net change in primary DB plans and

that in primary DC plans across plan sizes. The smaller the plan size, the greater the net increase in primary DC plans and the greater the net decrease in primary DB plans. The smaller the plan size, the greater the net increase in primary DC plans and the greater the net decrease in primary DB plans. Across all plan sizes, the net increase in DC plans was greater than the net decrease in DB plans, indicating that the growth in DC plans must have resulted from something more than a shift from DB to DC plans (chart 4).

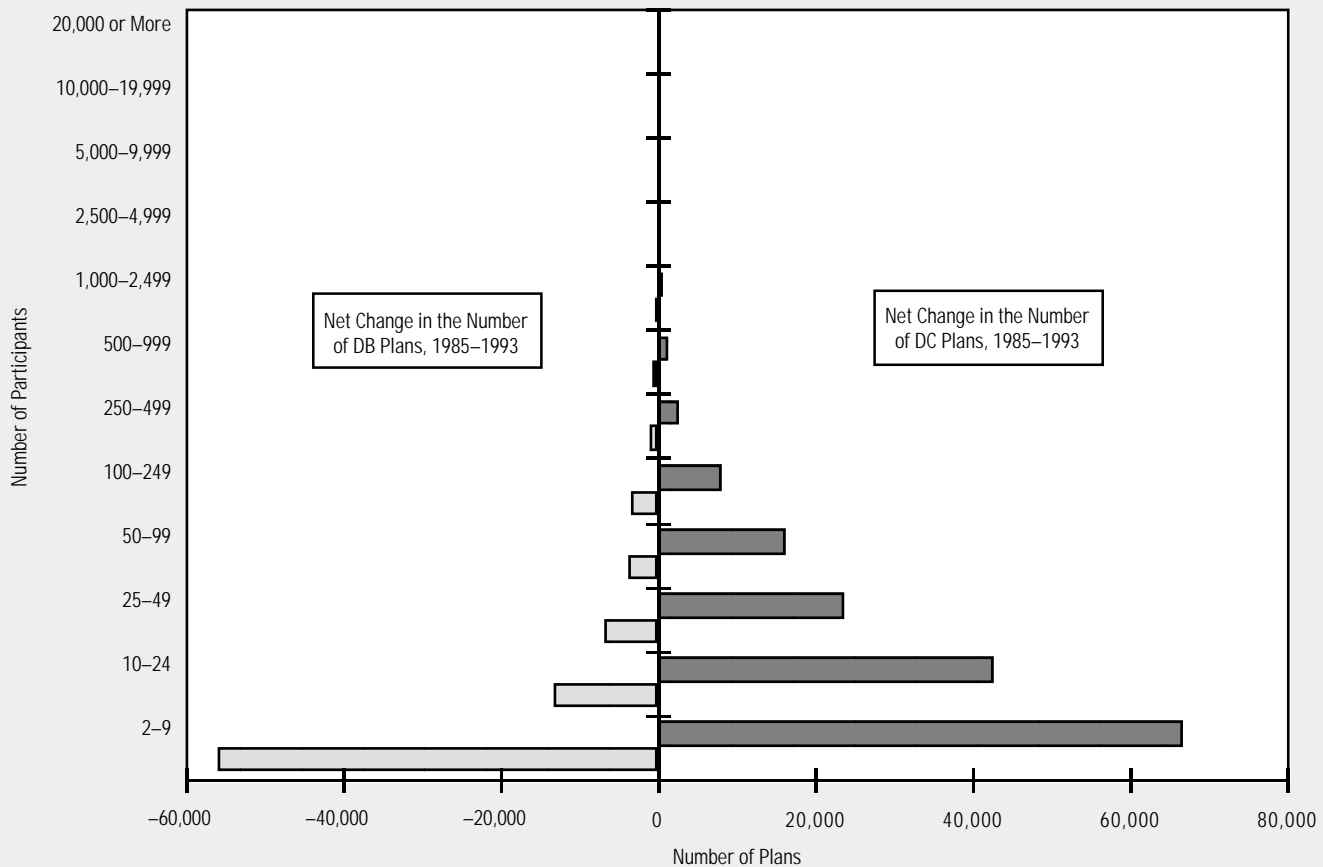
Participants

Research has shown that some of the increase in the proportion of pension plan participants covered by primary DC plans can be explained by employment shifts in the economy or by federal regulation of pension plans.⁵⁴ Kruse (1995) found that very little of the growth in DC plan coverage between 1980 and 1986 was due to companies terminating DB plans. He attributed the decline in DB plan participation primarily to a decrease in participants in these plans rather than a decrease in plans.

Ippolito (1995) considers the hypothesis that the introduction of 401(k) plans caused the increase in the percentage of pension plan participants covered by these DC plans that could not be explained by employment shifts in the economy or by federal regulation of pensions. According to his analysis, roughly 50 percent of this increase in DC plan market share can be explained by employment shifts away from union jobs, large firms, and industries that traditionally offered DB plans. Furthermore, he argues, federal regulations affecting administrative costs are only relevant to small plans, because plans with 500 or more workers have roughly equivalent costs for both DB and DC plans. He finds that, after their introduction in 1981, 401(k) plans absorbed market share from both DB plans and the then existing forms of DC plans. Specifically, he finds that

⁵⁴ See Andrews (1989), Clark and McDermed (1990), and Gustman and Steinmeier (1992) for results from earlier work in this field.

Chart 4
**Comparison of the Net Change in the Number of Primary Defined Benefit (DB)
 and Defined Contribution (DC) Plans, 1985–1993**



Source: Employee Benefit Research Institute tabulations of the 1985, 1990, 1991, 1992, and 1993 Form 5500 annual reports filed with the Internal Revenue Service.

74 percent of 401(k) plans in existence in 1988 would have been DB plans if 401(k) plans had not been allowed, and 26 percent of 401(k)s would have been another type of DC plan. However, this analysis assumes that all firms that adopted a 401(k) plan would have sponsored a DB plan or another type of DC plan. It is possible, given the unique advantages of 401(k) plans and their rapid growth, that the creation of 401(k) plans caused employers that otherwise would not have sponsored a pension plan to establish a 401(k) plan. Perhaps the creation of 401(k) plans expanded the DC plan market rather than, or in addition to, taking market share away from other plan types.

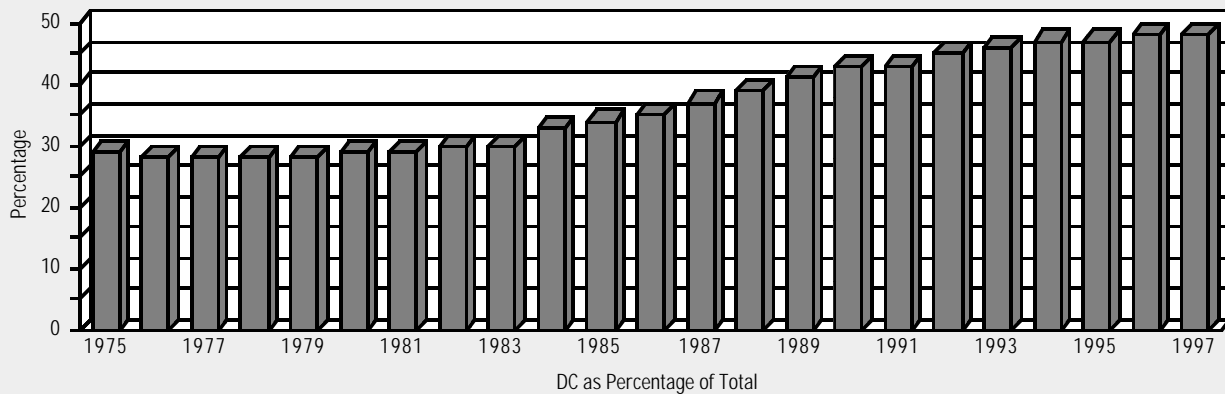
Contributions

While the trends in the relative number of plans and participants are certainly important, public policy analysis of the retirement prospects in the next century requires that we also consider the financial aspects of these plans and what they will likely provide for individuals at retirement, separation, etc. A potential

limitation of considering only the number of plans and/or participants is that many employers (especially those sponsoring larger plans) will provide both DB and DC plans for their participants. If there really has been a general change in the preferences for DC plans, it may be more likely to be implemented by a relative increase in the generosity of benefits offered through the DC plans as opposed to the DB plans. This may be done either by increasing the generosity of the DC plan (perhaps by increasing the employer match on a 401(k) plan) and/or by *prospectively* reducing the generosity of the DB plan (e.g., converting accruals for future service from final average to career average, or reducing the frequency and/or amounts of future ad hoc COLAs. Unfortunately, neither of these very significant changes in the overall portfolio of qualified retirement benefits could be accounted for by analyzing trends in either plans or participants.

One way to analyze the financial aspects of these trends is to consider the percentage of total qualified retirement assets held in DC plans. Chart 5 shows that

Chart 5
Defined Contribution (DC) Growth: Assets, 1975–1997



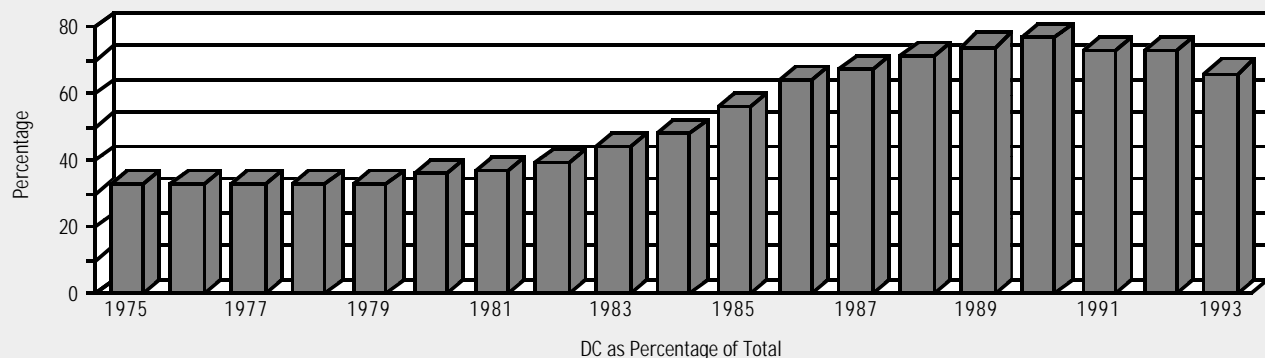
Source: 1975–1993: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (Winter 1997); and 1994–1997: *EBRI Quarterly Pension Investment Reports* (Washington, DC: Employee Benefit Research Institute, 1994–1997).

at the time ERISA was passed, approximately 29 percent of the total assets were held in DC plans. This figure held relatively constant until the early 1980s, and then escalated consistently, reaching a high of nearly 48 percent in 1997. Unfortunately, just looking at the aggregate numbers may be a bit misleading, because they consist of three components that have not experienced similar time series movements. The first of these—investment income—is difficult to analyze at this point because of its dependence not only on the financial markets’ performance but also on the asset allocation decisions of the parties making the investment decisions. Although the literature is replete with studies detailing the decisions made by DB plan investment managers, the behavioral aspects of asset allocation in participant-directed account plans have only recently been

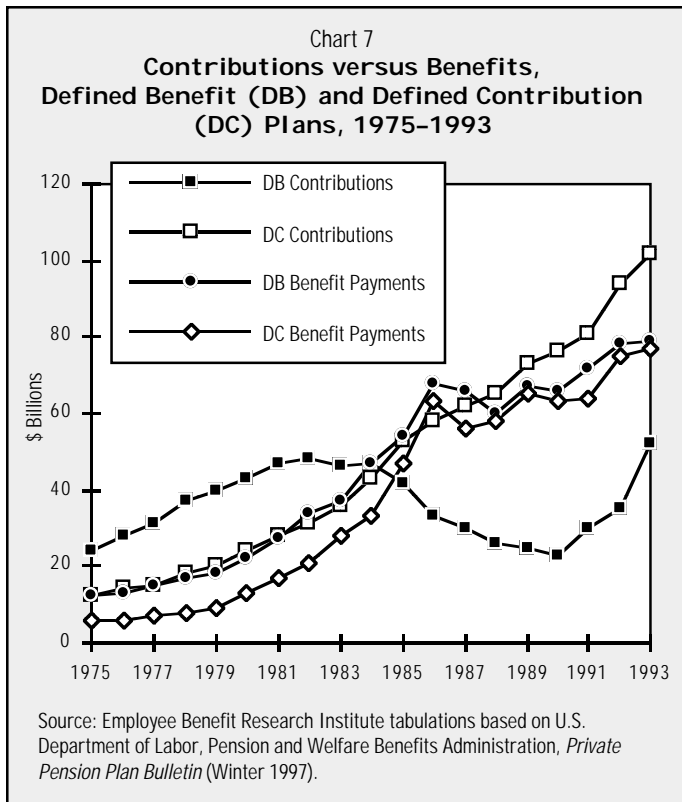
investigated. Conclusive evidence on the disparity between asset allocation in DB and DC plans (and hence the expected rate of return on their respective portfolios) awaits collection of more representative data on DC plans.

Fortunately, the other two components can be observed from Form 5500 statistics made available by DOL. Chart 6 shows the percentage of qualified retirement plan contributions made to DC plans. Again, the time series remains relatively constant from the passage of ERISA to the early 1980s, and then increases annually throughout the decade. However, the trend definitely peaked in 1990, and by 1993 it had fallen back to its 1987 level. A possible explanation for this trend would be that DB plans became relatively more generous vis-à-vis DC plans in the 1990s.

Chart 6
Defined Contribution (DC) Growth: Contributions, 1975–1993



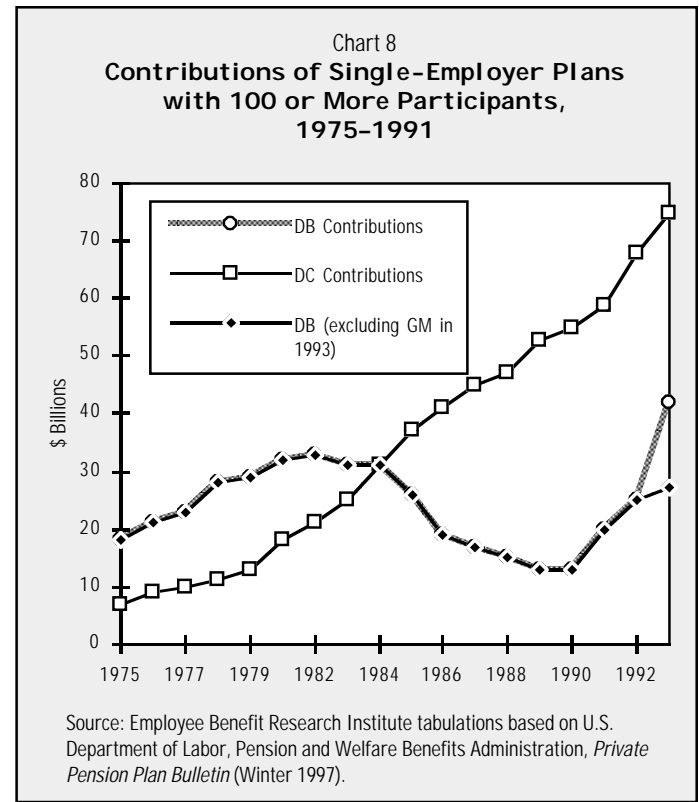
Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (Winter 1997).



While there is still no precise method of measuring DB plan benefit accruals, in order to compare them with contributions made to DC plans, one can get a first order approximation of the trends (albeit on a lagged basis) in chart 7. This chart reveals that the trends in benefit payments between DB and DC plans have been extremely consistent over time, even as the contribution trends have varied considerably. In other words, the relative drop in DB contributions in the late 1980s and their subsequent rise in the early 1990s have come without a corresponding modification in benefits paid out by DB plans.⁵⁵

The results shown in charts 6 and 7 reflect the bull market in stocks and bonds in the early 1980s that resulted in full funding of a large percentage of DB plans (Munnell and Ernsberger, 1987). They also partially reflect the minimum required contributions and the full-funding limitation modifications made in the Omnibus Budget Reconciliation Act of 1987 (OBRA '87). The former theoretically increased annual contributions for all underfunded DB plans with more than 100 participants, and the latter artificially suppressed aggregate DB contributions from the OBRA '87 effective date in 1988 or 1989 until the funding ratios among the

⁵⁵ This obviously ignores the fact that timing of the receipt of the benefits in DC plans (and to an increasing percentage DB plans) is largely a function of the participant's decisions regarding rollovers and lump-sum distributions. See Yakoboski (1996) for further discussion of this important topic.

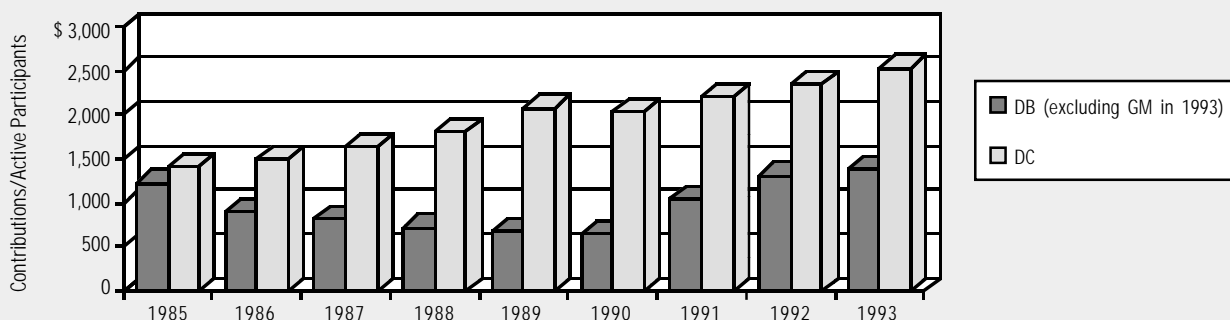


overfunded plans fell below 150 percent sometime in the 1990s.

Due to differences in legislative treatment for funding of multiemployer plans and plans with fewer than 100 participants, we have chosen to concentrate only on contributions to single-employer plans with at least 100 participants for the remaining analysis in this section. As of 1993, these plans accounted for over 80 percent of the DB contributions and nearly 75 percent of the contributions to DC plans. Chart 8 is similar to chart 7 except that only large single-employer plans (with at least 100 participants) are included. The DB trend is shown with and without the very large contribution of plan 003 for General Motors in 1993. Because this is most likely to be a one-year anomaly, the following analysis excludes this particular sponsor in all years.

Chart 9 shows the contributions from chart 8 as a dollar amount per active participant for the years 1985-1993. This time period was chosen for the following analysis for two reasons. It begins in 1985, after plan sponsors had an opportunity to react to the proposed regulations for 401(k) plans published in November 1981 but prior to the introduction of the new nondiscrimination requirements in TRA '86 and the new funding requirements in OBRA '87; and it utilizes the most recent Form 5500 data currently available (1993). The results for the DB trends are consistent with Gale (1994)

Chart 9
Contributions/Active Participants for Single-Employer Plans with 100 or More Participants, Defined Benefit (DB) and Defined Contribution (DC) Plans, 1985-1993



Source: Employee Benefit Research Institute tabulations based on U.S. Department of Labor, Pension and Welfare Benefits Administration, *Private Pension Plan Bulletin* (Winter 1997).

who estimates that between 1987 and 1991 real contributions per covered worker fell by \$375, and that OBRA '87 reduced annual contributions by \$154.⁵⁶

Methodology—In an attempt to analyze the factors influencing the change in relative contributions to DC plans (or subsets thereof), we collected Form 5500 information for 1985 and 1993 for all large, single-employer sponsors other than General Motors. We then combined all plan information for each sponsor using the Employer Identification Number as a proxy for the decision making entity. We determined a ratio equal to total DC plan contributions divided by total qualified retirement plan contributions for each plan sponsor⁵⁷ for both years.

Modifying the methodology adopted by Clark and McDermed, Gustman, and Steinmeier, and Ippolito cited above, we used logistic regression analysis to attempt to explain the percentage of a sponsor's total qualified retirement plan contribution that was allocated to the DC plans. These models were then used to control for employment shifts in unionization, firm size, and industry. The result of each analysis is an estimate of how much the percentage of total contributions to DC plans changed as a result of factors other than employment shifts.

Results—Table 4 provides the results of the analysis for all DC plans combined. The second column shows what

⁵⁶ Both numbers are expressed in 1987 dollar amounts.

⁵⁷ For example, if a sponsor only made contributions to DC plans in 1993, the ratio would be 1 (this would be true even if the employer sponsored DB plans that received no contributions for the year). Sponsors that only made contributions to DB plans for the year would have a ratio of 0. Those making contributions to both types of plans for a year would have an intermediate value.

percentage of total contributions to DC plans was provided by various categories. For example, 30 percent of the contributions to DC plans were provided by employers with unionized employees, and 70 percent were provided by those without unionized employees. Column three shows how much that percentage changed between 1985 and 1993. Firms with unionized employees accounted for 9 percent less over this period, and ended up providing only 21 percent of the contributions to DC plans in 1993. The drastic impact of firm size is evident in this column, as sponsors with fewer than 200 employees increased from 6 percent to 28 percent of the total contributions for DC plans, and firms with more than 5,000 employees decreased from 72 percent to 42 percent.

Column 4 shows the average percentage of total contributions directed to DC plans for each of the categories. For all plan sponsors included in the analysis, 61 percent of the 1985 retirement plan contributions were of a DC nature. Unionized firms averaged 53 percent, the same as firms with less than 200 employees. The final column may be the most interesting for public policy purposes. Focusing on the top row (total), this analysis concludes that by 1993 there would have been a positive 11 percent growth in the percentage of DC contributions had there been no employment shifts in the intervening period. Unionized firms would have decreased 3 percent, while nonunionized firms would have experienced a 19 percent growth. All size categories would have experienced positive growth, but there is a strict inverse relationship between firm size and the calculated growth. Sponsors with fewer than 200 employees would have gained 28 percent, those with 5,000 or more would have gained only 8 percent.

Table 5 provides the same analysis but confines

Table 4
Change in Percentage of Total Contributions to Defined Contribution (DC) Plans, 1985–1993

Variable	Distribution of Contributions to DC Plans		Percentage of Total Contributions to DC Plans	
	Actual 1985	Change 1985–1993	Actual 1985	Change 1985–1993 independent of employment shifts
Total	100%	0%	61%	11%
Unionization				
Union	30	–9	53	–3
Nonunion	70	9	65	19
Firm Size				
200 or fewer employees	6	22	53	28
200–500 employees	5	3	68	20
500–1,000 employees	4	2	64	22
1,000–1,999 employees	5	2	59	19
2,000–4,999 employees	9	1	63	11
5,000 or more employees	72	–30	61	8
Major Industry				
Mining	1	0	74	2
Construction	1	1	81	11
Manufacturing	51	–8	61	6
Transp ^a	13	–1	47	26
Wholesale trade	2	2	77	9
Retail trade	7	–1	84	7
FIRE ^b	14	0	69	7
Services	8	8	66	10
Other	2	–2	46	32

Source: Employee Benefit Research Institute calculations.

^aTransportation, communication, electric, gas, and sanitary services.

^bFinance, insurance, and real estate.

Table 5
Change in Percentage of Total Contributions to Defined Contribution (DC) Plans with 401(k) Features, 1985–1993

Variable	Distribution of Contributions to DC Plans with 401(k) Features		Percentage of Total Contributions to DC Plans with 401(k) Features	
	Actual 1985	Change 1985–1993	Actual 1985	Change 1985–1993 independent of employment shifts
Total	100%	0%	42%	15%
Unionization				
Union	32	–9	39	5
Nonunion	68	9	43	20
Firm Size				
200 or fewer employees	4	25	27	28
200–500 employees	3	4	30	32
500–1,000 employees	3	3	33	29
1,000–1,999 employees	4	2	35	23
2,000–4,999 employees	8	1	38	20
5,000 or more employees	78	–36	45	11
Major Industry				
Mining	1	0	47	15
Construction	1	1	39	22
Manufacturing	53	–8	44	8
Transp ^a	13	0	30	35
Wholesale trade	1	2	36	29
Retail trade	7	–2	60	7
FIRE ^b	15	–1	50	11
Services	7	8	36	20
Other	2	–2	24	31

Source: Employee Benefit Research Institute calculations.

^aTransportation, communication, electric, gas, and sanitary services.

^bFinance, insurance, and real estate.

the analysis solely to plans with 401(k) features.⁵⁸ As expected, there is an even stronger size impact in 1985 (column 2) for these plans since large plans would be more likely to have adopted this feature by that time. Likewise the relative change between 1985 and 1993 (column 3) shows even more “catch-up” on the part of small employers. Column 4 shows that, even by 1985, 69 percent of the total DC contributions were already going to plans with 401(k) features (c.f., column 4 in table 5 with column 4 in table 4). The final column in this table is very similar to the previous one although the numbers are generally larger; even the unionized firms show a positive gain. It is interesting to note that the medium size firms (200–1,000 employees) show as much growth, independent of employment shifts, as do the small firms.

Finally, table 6 shows what happened to DC plans without 401(k) features. Focusing on the last column, it is clear that some of the gain for DC plans with 401(k) features shown in the previous table came at the expense of DC plans without 401(k) features; however, most of it was a direct substitute for DB plans. This

was particularly true for small firms whose change for non-401(k) DC plans was 0 percent after controlling for employment shifts.⁵⁹

Future Research—Although tables 4 through 6 shed considerable light on recent trends in funding retirement promises through a DB and/or DC entity, and more specifically a DC plan with or without a 401(k) feature, a more complete understanding of the factors related to managerial decisions requires (1) a control for the impact of full-funding limits on DB plans⁶⁰ and (2) additional

⁵⁸ Although it is common to refer to certain types of DC plans that provide the employee an opportunity to make before-tax contributions as a “401(k) plan,” it may be easier to think of these entities as profit-sharing (or stock bonus) plans with a 401(k) feature.

⁵⁹ See Ippolito (forthcoming) for a detailed explanation of his sorting hypothesis on why 401(k) plans may be a substitute for defined benefit plans.

⁶⁰ Readers are cautioned not to interpret the results as evidence of what would have transpired had certain binding constraints (such as the full-funding limits) not been in place. Such work is currently in progress, but awaits further empirical refinements such as the appropriate standardization of normal cost measures across various plan types and combinations of actuarial assumptions.

(nonpension) financial information on the sponsoring firm. Considerable research has already been undertaken with respect to the influence of these factors on the propensity of an overfunded DB plan to take a reversion, and future research combining Compustat and Form 5500 information will no doubt further our understanding of this important public policy issue.⁶¹

Public Plan Trends

DB Plans Are Predominant

Lower demand for DC arrangements has

contributed to the significantly slower growth rates of public-sector DC plans. One explanation for lower demand for primary DC plans from public employees is the fact that government workers have historically been universally covered under DB plans, partly as a result of the exemption of public employees from participation in the (DB) Social Security system. In response, public employers have often augmented the DB guarantee that would otherwise be received through Social Security benefits with DB plans that tend to provide higher benefit levels than those in the private sector. Unlike private plans, public employees often finance part or all of the defined benefit that they receive from DB plans, and their contributions are given tax-favored treatment. The demand for the creation of DC plans is presumably smaller from public employees who are allowed to make before-tax contributions to DB plans, which tend to provide higher benefit levels than those in the private sector.

On the supply side, government employers have been more likely to sponsor DB plans. The reason is that public employers are more likely overall to have had the required administrative and fiscal resources to fund these plans, which tend to be more unpredictable to fund than DC arrangements.

Governments' ability to control their incomes

Table 6
Change in Percentage of Total Contributions to Defined Contribution (DC) Plans without 401(k) Features, 1985–1993

	Distribution of Contributions to DC Plans		Percentage of Total Contributions to DC Plans	
	Actual 1985	Change 1985–1993	Actual 1985	Change 1985–1993 independent of employment shifts
Total	100%	0%	19%	–4%
Unionization				
Union	25	–9	14	–8
Nonunion	75	9	22	–2
Firm Size				
200 or fewer employees	9	14	26	0
200–500 employees	8	1	39	–12
500–1,000 employees	6	1	31	–7
1,000–1,999 employees	6	1	24	–4
2,000–4,999 employees	11	0	26	–9
5,000 or more employees	59	–18	16	–3
Major Industry				
Mining	1	0	26	–13
Construction	1	1	42	–10
Manufacturing	45	–10	17	–1
Transp ^a	15	–4	17	–10
Wholesale trade	3	1	41	–19
Retail trade	6	1	24	0
FIRE ^b	13	3	19	–4
Services	12	8	30	–10
Other	4	–4	21	1

Source: Employee Benefit Research Institute calculations.

^aTransportation, communication, electric, gas, and sanitary services

^bFinance, insurance, and real estate.

and hire administrative staff through tax increases and revenue borrowing has given the public sector more funding flexibility than private plans enjoy. In addition, public DB plans are exempt from many of the regulations pertaining to private-sector DB plans,⁶² obviating for the public sector one of the private sector's main arguments for the use of DC arrangements as opposed to DB plans. Because supply and demand for DC plans have been lower in the public sector, DB plans remain the primary plan type for state, local, and federal employees, with over 90 percent⁶³ of state and local

⁶¹ See VanDerhei and Wang (1997) for a preliminary attempt to integrate these concepts.

⁶² For example, ERISA applies only to private retirement plans. However, in 1978, Congress extended ERISA's financial and actuarial reporting standards to federal pension plans in Public Law 95-595. Standards in the IRC apply to state and local plans. In addition, state and local plans are subject to state trust laws and regulations. On the whole, public plan design and reporting regulations tend to be less strict than those applying to private pension plans. However, public plans are subject quite often to more stringent investment restrictions than private plans.

⁶³ The Bureau of Labor Statistics reports that 91 percent of employees in state and local governments were covered by a DB plan in 1994.

Table 7
Federal Public Pension Plans and Participants
Summary of Selected Federal Public-Sector Plan Trends, Selected Years 1981–1995^a

	1981	1983	1985	1987	1989	1991	1993	1994	1995
Total Participants	6,408	8,321	8,591	9,849	10,644	10,919	10,779	10,813	10,825
Defined benefit plans	6,408	8,321	8,591	8,860	9,190	9,143	8,743	8,694	8,630
Civil Service Retirement System	4,756	4,754	4,919	4,295	4,332	4,086	3,808	3,808	3,731
Federal Employees Retirement System	b	b	b	800	1,086	1,325	1,764	1,764	1,512
Military Service Retirement System ^c	1,652	3,567	3,672	3,765	3,790	3,732	3,511	3,451	3,387
Defined contribution plans	d	d	d	989	1,454	1,776	2,036	2,119	2,195
Thrift Savings Plan ^d	d	d	d	989	1,454	1,776	2,036	2,119	2,195
Defined contribution as a percentage of total	0%	0%	0%	10%	14%	16%	19%	20%	20%
Total Active Participants (thousands)	3,043	4,838	4,992	6,056	6,448	6,643	6,418	6,360	6,345
Federal retirement systems ^f									
defined benefit plans	3,043	4,838	4,992	5,109	5,158	5,050	4,606	4,484	4,415
Civil Service Retirement System	2,755	2,690	2,800	2,080	1,918	1,726	1,525	1,443	1,525
Federal Employees Retirement System	b	b	b	800	1,052	1,260	1,318	1,375	1,318
Military Service Retirement System ^c	288	2,148	2,192	2,229	2,188	2,064	1,763	1,666	1,572
defined contribution plans	d	d	d	947	1,290	1,593	1,812	1,876	1,930
Thrift Savings Plan ^d	d	d	d	947	1,290	1,593	1,812	1,876	1,930
Defined contribution as a percentage of total	0%	0%	0%	16%	20%	24%	28%	29%	30%
Defined contribution as a percentage of total, excluding military plans	0%	0%	0%	33%	43%	53%	64%	67%	68%

Source: U.S. Department of Defense, Office of the Actuary, *DOD Statistical Report on the Military Retirement System*, fiscal years 1981–1995 (U.S. Department of Defense, n.d.); U.S. Office of Personnel Management, *Civil Service Retirement and Disability Fund Annual Report*, fiscal years 1986–1995 (Washington, DC: U.S. Office of Personnel Management, 1987–1996); *U.S. Civil Service Retirement System Annual Report*, fiscal years 1983–1985 (Washington, DC: U.S. Office of Personnel Management, 1984–1987); and unpublished data from the Office of Personnel Management, the Federal Retirement Thrift Investment Board, and the Department of Defense, Office of the Actuary.

^aData for the Civil Service Retirement System, Federal Employees Retirement System, Military Service Retirement System, and state and local retirement systems are expressed in fiscal years, beginning on October 1 of prior calendar year and concluding on September 30 of calendar year indicated. Data for the Thrift Savings Plan are expressed in calendar years.

^bThe Federal Employees Retirement System was established June 6, 1986.

^cIncludes all personnel and their families with the exception of reserves.

^dThe Thrift Savings Plan was established April 1, 1987.

employees and nearly all federal employees participating in a DB arrangement between 1994 and 1995 (U.S. Department of Labor, 1995; and Zorn, 1996).

DC Plans Attract Interest and Use

The public sector has nevertheless increased its use of DC arrangements, although not to the same extent as the private sector. Federal plan trends show movement over the past decade toward increased utilization of DC arrangements, following the adoption of the Federal Employees Retirement System (FERS) (table 7). Enacted on January 1, 1987, FERS was created in part to replicate the mix of DC and DB arrangements increasingly available to private-sector workers (Merck, 1994). FERS includes a voluntary DC plan—the Federal Thrift Savings Plan (TSP)—in addition to its DB base. Until 1987, federal employees were covered under a DB plan exclusively, the Civil Service Retirement Service (CSRS). Employees hired prior to January 1, 1984, were given the option of switching to FERS or staying with CSRS.

All employees hired after that date are required to participate in FERS. Both FERS and CSRS employees have the option of participating in the TSP, although FERS employees are allowed to contribute a higher percentage of basic pay on a pretax basis because the DB plan under FERS is less generous than that under CSRS.⁶⁴ As a result of the implementation of FERS, the percentage of active federal employees (excluding military personnel) participating in a DC plan has grown from none in 1985, to 33 percent in 1987, and to 68 percent in 1995 (table 7). As of 1997, voluntary TSP participation by employees covered by FERS stands at 82.9 percent, and voluntary participation by employees covered by CSRS is approximately 56 percent (Mehle, 1997).

⁶⁴ Thrift Savings Plan (TSP) participants contribute either a percentage of basic pay or a fixed dollar amount each period through payroll deductions. FERS employees can contribute up to 10 percent of basic pay on a pretax basis, whereas CSRS employees may contribute up to 5 percent of basic pay on a pretax basis. Participants are also subject to annual deferral limit set by IRC sec. 402(g)—the same limit as for sec. 401(k) deferrals. The limit is subject to annual adjustment and was set at \$9,500 in 1997.

The number of DC plans in state and local governments has grown significantly. For example, 36 states reported assets totaling \$1.5 billion in 1985, compared with 50 states and 56 localities reporting combined assets of over \$28 billion in 1997.

Individual State and Local Plans Explore DC Approaches

Two issues emerge when considering whether DC plans have expanded in state and local governments. The first is whether the market is growing for DC plans that have been traditionally used to cover state and local employees. The second is whether preexisting DB plans are being terminated, or converted, into DC arrangements.

Some DC plans have been offered to state and local employees for decades. For example, many public educators have traditionally been covered by sec. 403(b) plans. In addition, a portable (DC) retirement plan for municipal managers has existed since 1972, and sec. 457 plans began in the late 1970s. For some government employees, DC plans have supplemented DB plans, and for others, DC plans have been their primary plan. In 1994, 67 percent of state and local government workers with a money purchase (401(a)) retirement plan were not covered by any other type of employment-based retirement arrangement (U.S. Department of Labor, 1996).

The number of DC plans in state and local governments has grown significantly. For example, 36 states reported assets totaling \$1.5 billion in 1985, compared with 50 states and 56 localities reporting combined assets of over \$28 billion in 1997 (Olsen, 1996). Some of this growth is attributable to state and local government employers with DB plans sponsoring DC plans as a supplement. For example, the Public Employee Retirement System (PERS) of Idaho has expanded its 401(k) plan, and Utah has had a supplementary 401(k) plan for several years.

As mentioned above, some growth of DC plans among state and local employers resulted from converting purely DB systems into exclusively DC systems. Several public employers have made this switch (at least for new employees), including Michigan PERS, Michigan

Municipal Employees' Association, Genessee County (MI), the city of Wichita (KS), and the city of Detroit (MI). In addition, Maine has converted its DB plan into a DC plan for appointed and elected officials. Meanwhile, other public employers have adopted hybrid retirement systems, including Washington Teachers (Plan 3), Colorado PERS,

and South Dakota. And, some states such as Nebraska, Texas, and West Virginia now have major statewide defined contribution plans as their primary benefit structure (Stella and Steffen, 1997). Reasons cited for these initiatives include state and local governments' desire for increased pension portability (Gates, 1996),⁶⁵ competition with the private sector to attract employees (Eitelberg, 1996), and the fiscal constraints currently faced by many state and local governments (Eitelberg, 1996).

Despite the above evidence of a trend toward greater usage of DC plans among government employers, recent studies by the Government Finance Officers' Association (GFOA) found that the percentage of government plans offering DC plans exclusively has remained relatively constant at 3 percent–4 percent of responding plans from 1991 to 1995. In addition, the Bureau of Labor Statistics reports that 97 percent of full-time employees in state and local governments offered a DB plan were not offered a DC plan. However, these data may change, as other states with increased interest in DC plans⁶⁶ implement changes, and these changes affect aggregate state and local data.

⁶⁵ Gary I. Gates (1996) notes the opposing incentives present for most state and local employees, stating that while "effective public service requires the movement of personnel within the public sector and between public and private employers . . . most public employers now provide final earnings defined-benefit retirement plans, which reward long tenure with a single employer."

⁶⁶ States showing increased interest in DC plans include California, Connecticut, Idaho, Iowa, Kansas, Montana, Ohio, Oregon, and Pennsylvania (Stella and Steffen, 1997).

Understanding the Trends

Speculative explanations outweigh empirical data concerning exactly why DC plans have

grown to such an extent in terms of plans, participants, assets, and contributions. When empirical data are available, however, it is sometimes limited and/or contradictory. This section discusses three broad, commonly proposed explanations for the increased use of DC plans, and cites the research and lines of reasoning used to support them. First, some have claimed that government regulation has had a profound impact on plan choice (*Employee Benefit Plan Review*, 1995; Healy, 1997; Paul, 1995). Second, increased employee appreciation and demand for DC plans has been proposed as a driver of DC plan expansion (Eitelberg, 1995; Steinberg and Graffagna, 1993; and Williamson, 1995). Finally, increased global competition and employers' subsequent need for more flexibility has been proposed as a factor heavily influencing plan design choices (Salisbury, 1997).

The Government Role

Many argue that, intentionally or unintentionally, government legislation and regulation have greatly increased the attractiveness of DC plans over the DB approach (Clark and McDermed, 1990; Academy of Actuaries, 1992; McGinn, 1984; Friend, forthcoming). This section highlights some of the governmental actions most frequently cited as contributing to the trend toward DC arrangements in the private sector.

Administrative Complexity and Frequency of Administrative Change Have Disproportionately Affected DB Plans

Prior to ERISA, federal regulations governing retirement plans were neither as complex nor as comprehensive as they subsequently became. ERISA's efforts to improve

the security of pension promises made by employers to employees brought about significant changes.⁶⁷ Changes since ERISA, including at least 22 legislative acts, have added to plan administrative cost and complexity (McGill, 1996).

Because of the nature of retirement benefits, the need for legislation to accommodate various interests and exceptions, and the sheer frequency of change, pension law and legislation are now very complex areas. In fact, an entire field of specialized expertise has grown up around ERISA and its accompanying regulations. More than ever, retirement plan specialists (e.g., consultants, actuaries, accountants, and others) are needed to advise employers on which retirement packages will meet their strategic business objectives as well as comply with legal requirements. In fact, the ERISA Industry Committee (ERIC), a membership organization representing the employee benefit interests of America's largest employers, states "federal rules regarding the operation of pension plans have grown so complex and, in some instances, so contradictory, that it is impossible to operate a plan in total compliance with the law at all times" (ERISA Industry Committee, 1996).

Although administrative complexity and expenses have risen for DC plans as a result of the multitude of regulatory and legislative initiatives over the past two decades, DB plans have been most affected. Many argue that new laws and regulations have raised DB administrative costs enough to make DC plans more attractive to many plan sponsors (Clark and McDermed, 1990; Husted, 1996), especially smaller employers who do not have the economies of scale available to mitigate the administrative costs of larger plans. However, others in the business community argue that the growth in DC plans is primarily fueled by the relative frequency with which DB plan regulations change, not the complex-

⁶⁷ Among other things, ERISA established new participation, vesting, funding, reporting, fiduciary, and disclosure requirements and created PBGC to provide plan termination insurance for DB plans.

ity of DB plan administration itself. Some experts claim that small changes in plan regulation, which might not have been problematic if they had been implemented at the outset, can cause significant financial burdens if enacted today.

Increasing PBGC Premiums Add to the Cost of Private DB Plans

Because DC plans are not insured by PBGC, rising PBGC premiums only increase the cost of private DB plans. Although the premium was a flat rate of \$1 per participant per year when the program was established, legislation has since increased it to a flat rate of \$19 per participant⁶⁸ along with an additional variable premium that increases with underfunding. In addition to increasing the cost assessed to sponsors of existing underfunded plans, the higher premiums have raised the cost of starting new DB plans, because many new plans begin with unfunded liabilities for older workers who have been “grandfathered” into the plan with past service credits.

The Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) and The Tax Reform Act of 1986 (TRA '86)

As discussed in the section on Private Plan Trends, much of the decline in DB plans is attributable to small plan terminations. One suggested explanation for this is that many of these small plans—sometimes covering under 10 participants—were established as tax shelters for higher paid persons, not retirement plans for rank-and-file workers. When legislation removed many of the incentives to maintain a DB plan for tax-sheltering purposes, these plans were terminated. For example, the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) imposed penalties on top-heavy plans, and TRA '86 lowered basic income tax rates, imposed faster minimum vesting standards, and eliminated the tax qualification of some small DB plans, primarily single-participant plans. Under the latter provision, a plan is not qualified unless it includes the lesser of 50 employees

or 40 percent of an employer’s work force.⁶⁹

Full-Funding Limitations and Liquidity Requirements Mitigate One DB Advantage

Funding flexibility, when defined as the percentage of assets available to cover the plan liabilities, is still a funding advantage of DB plans. After all, DC plans are always 100 percent fully funded, but DB plans are allowed to overfund. However, this advantage was mitigated by OBRA '87, which was designed to increase funding among underfunded plans by increasing minimum required contributions and cutting back on funding waivers. The expected revenue loss from this increase in funding was to be offset by cutting back on maximum tax-deductible contributions for overfunded plans. By establishing a stricter upper limit on tax-deductible contributions, OBRA '87 rendered nondeductible any additional contributions to a plan with assets covering more than 150 percent of termination liabilities.⁷⁰ Before OBRA '87 was enacted, businesses with uncertain profit margins were able to create a financial cushion in their DB plan by overfunding during profitable years. The accumulation of financial cushions takes the pressure off of plan funding during less profitable years, and is still a unique advantage of the DB approach.

The Retirement Protection Act of 1994 also mitigated the funding flexibility of DB plans. This act increased minimum contributions for underfunded DB plans by imposing liquidity requirements, which mandate that a plan have enough liquid assets to cover

⁶⁸ This includes retirees and vested participants who have terminated employment with the plan sponsor.

⁶⁹ IRC sec. 401(a)(26). The number of single-participant DB plans increased from 9,000 in 1977 to 54,000 in 1985. Data on the number of single-participant DB plans are not available for 1993 due to changes in reporting requirements. However, it is likely that this TRA '86 provision caused many small plans to terminate, particularly plans covering a relatively small number of employers' higher-paid employees (e.g., partners in law firms and accounting firms). This rule has been eliminated for DC plans effective 1/1/97.

⁷⁰ 1997 legislation has scheduled this limit to rise to 170 percent gradually. The limit rises to 155 for plan years beginning in 1999, 160 percent in 2001, 165 percent in 2003, and 170 percent for plan years beginning in 2005.

approximately three years of benefit payments. If the plan misses a liquidity contribution, there are restrictions on paying distributions other than regular annuities (e.g., lump-sum distributions) (Allen et al., 1997).

Employee Appeal of DC Plans

Small survey and anecdotal evidence suggest that employees may appreciate DC plans more than DB plans of equal employer cost (Eitelberg, 1995; Steinberg and Graffagna, 1993; and Williamson, 1995). Employees may better appreciate the DC approach for several reasons.

1. DC plans tend to be easier to understand than DB arrangements, in large part because DC plan benefit statements are not projected based on life expectancy, interest rate, and salary projections, but instead are reported at their present value.
2. Employees may favor DC plans because they often allow self-directed investments, and employees desire this the flexibility and the control involved.
3. Employees may prefer the in-service distributions that are available under many DC plans but are prohibited under a DB approach. While retirement planning is important, many workers find saving for childrens' education, purchasing a home, and other consumption activities equally or more important (Yakoboski, 1997).
4. The relatively high average rates of return available from the equities market over recent years, and the subsequent growth of marketing efforts from financial firms, may have enticed employees to seek plans that allow self-directed investing. The equities market may seem attractive enough that employees are willing to exchange a DB guarantee for the ability to self-direct assets into this market. And, as more people believe they can benefit from self-directed investments, fewer people are likely to demand risk-pooling arrangements such as DB plans.
5. Employees may prefer the tax advantages granted to their contributions to 401(k)-type DC plans to the

benefit promises of the DB approach.

6. Employees may expect to change employers several times during their career, and seek the increased "portability" that DC plans tend to allow over traditional DB plans. Unfortunately, the concept of portability has many interpretations in the pension field. For some, this refers to the loss (or more precisely, the lack thereof) of pension benefits and/or account balances when an employee leaves the organization. However, if an employee is already vested in the pension plan, then there will not be any forfeiture of any rights already acquired under the plan.⁷¹ For others, the concept of portability refers to the concept of "losing" the increase in value that would be obtained for previously accrued benefits under a final-average DB plan if the employee would have experienced future wage increases had he or she remained with the current employer (see chart 2 for an illustration of how final average DB plans penalize job change). Given the increasing numbers of DB plans paying lump-sum distributions on job termination (Hewitt, 1992), the distinction between the portability of DB versus DC plans may be lessening.⁷²
7. Employees may not trust their employers to accurately calculate their DB pensions, and DC plan statements allow employees to keep a closer eye on their benefits.⁷³

⁷¹ The concept of vesting applies somewhat differently for multiemployer plans. According to Drinkwater (1997):

Although they might work for numerous employers over the course of their work lives, employees covered under collective bargaining agreements that require employer contributions to multiemployer plans usually do not have to be concerned with losing benefits from or transferring benefits among employers' plans. In multiemployer pension plans, for example, employees will be credited years of service for vesting and participation purposes as long as they work for a contributing employer in covered service or in contiguous noncovered service with the same employer.

⁷² However, DC plans will remain more "portable" for most workers as long as DB plan benefits tend to favor older workers, because the lump-sum distributions available through DB plans will be relatively small for workers not near retirement age.

⁷³ Note the extensive coverage that DB plan miscalculations received in the popular press in 1997. For a discussion of this issue, see Shutan, 1997.

8. And, finally, employees may simply not understand the relative advantages and disadvantages of different plan types and designs. For example, Mitchell (1987) found widespread misinformation among worker reports of pension provisions.

Market Forces: Increased Global Competition

Global competition among many U.S. firms increased with the onset of widespread globalization during the 1980s. As a result, many businesses increasingly deal with uncertain profit margins. The ability to quickly divest a business venture or to go out of business with the least obligations can be a competitive advantage for a firm competing internationally. DC plans—because they are always 100 percent funded and because they tend to have fewer regulatory constraints—are perceived as preferable to DB plans by some firms that are unsure of their stability and profits. In addition, some contend that increased global competition has forced some U.S. firms to cut compensation costs, thereby freezing their DB plans and replacing them with less generous retirement benefits in the form of DC plans. Finally, using a DC plan may also allow U.S. firms overseas to offer benefits similar to those being offered by other countries, as Dent and Sloss (1996) identify a “prevalence of DC plans around the world.” Unfortunately, despite the weight that some practitioners assign to increased global competition in the growth of DC plans, obtaining quantitative data to support or disprove these allegations has proven difficult for researchers.

Taxpayer Pressures

Taxpayer pressures have also contributed to the increased use of DC plans in the public sector (Miller, 1997). Given federal initiatives to decrease taxes, state and local government employers may be less willing to deal with cost uncertainty and open-ended liabilities. As a result, some are moving toward greater or exclusive

use of DC plans, which provide better budgetary predictability. As explained above, DC plans present no risk of unfunded liability, as DC funds are, by definition, 100 percent funded.

Public Policy Implications

Retirement Income Provision

Traditional DB plans typically

required participants to wait until retirement age before receiving any benefits,⁷⁴ at which time a life annuity was issued to the participants (and possibly their spouses). Annuity payments (typically monthly) continued until the participants' death (or the death of the survivor if a joint-and-survivor annuity was purchased). While some retirees receiving a pension may have needed to worry about having enough money, none were at risk of running out of money altogether. As long as they were alive, they could look forward to another pension payment.

A smaller proportion of retirees are likely to experience such an arrangement in the future, and tomorrow's retirees' retirement income security is likely to depend increasingly on a worker's lifelong money management decisions regarding employment-based retirement savings. Workers will need to manage these funds successfully over the course of their working lifetimes and during retirement itself, in order both to accumulate sufficient retirement savings and then to manage this money in such a manner that they do not outlive it. This increasing dependence on individual responsibility for retirement security is a result of the growth in lump-sum distributions from DB plans (Hewitt, 1992) and the proliferation of DC plans, as these plans continue to pay their traditional lump-sum distri-

⁷⁴ DB plan participants could (and can) be forced to take a lump-sum distribution on termination if the accrued vested benefit is worth less than or equal to 3,500 in present value. The threshold has been increased to \$5,000 in present value.

From a policy perspective, concerns have arisen about individuals mismanaging employment-based retirement savings during their working lifetimes and/or during retirement and, as a result, needing government support.

butions and generally to offer more preretirement access to funds. (See Plan Distributions, p. 6.)

From a policy perspective, concerns have arisen about individuals mismanaging employment-based retirement savings during their working lifetimes and/or during retirement and, as a result, needing government support. Some worry that the increase in the need for government support because of financial mismanagement of employment-based retirement savings will occur just when society is projected to be supporting an unprecedented proportion of older persons. Given future entitlement program cost projections, how much additional assistance will the government be able to provide and at what cost to the rest of society? And, if government supports persons who mismanaged employment-based savings, is this fair to people having equal lifetime resources and expenses who sacrificed past consumption in order to manage their money effectively? However, if the government does not support the elderly who become impoverished as a result of mismanaging their employment-based retirement savings, can society accept the human costs?

As a result of these concerns, public policy has sought to encourage the preservation of retirement money accumulated on a tax-deferred basis through income and penalty taxes. However, despite these penalties, 60 percent of distributions to job changers from large plans are not rolled over into an IRA or qualified employment-based plan (Yakoboski, 1997). Because the data are limited, it is not known how persons used money that was not rolled over; however, it is possible that the 60 percent of distributions not rolled over result in leakage from the retirement savings pool equal to one-fifth of all "retirement savings" paid in lump-sum distributions to job changers.

Opinion poll survey research on the rollover behavior of current workers also suggests significant leakage from the retirement savings pool as a result of

lump-sum distributions that were not preserved. The 1997 Retirement Confidence Survey shows that 55 percent of current workers who reported ever having received a lump-sum distribution did not roll over any of the funds into an IRA, 61 percent did not leave the funds in their former

employer's plan, and 91 percent did not roll any of it over into their new employer's qualified retirement plan. What happened to funds that were not rolled over or left in the former employer's qualified plan? Thirty percent of respondents reported spending and/or using at least some of the money to pay off debt (Yakoboski, forthcoming).

Although retirees seem more likely to roll over lump-sum distributions (recent large firm data show that about 87 percent of dollars from lump-sum distributions to retirees are rolled over), this amounts to only 52 percent of all distributions. Hence, about 48 percent of retirees who are given a lump-sum distribution do not roll it over.

These rollover patterns among retirees and job changers is not problematic from a public policy perspective if it results in leakage of funds that are not needed for retirement. However, data show that the smaller the distribution, the less likely it is to be rolled over (Yakoboski, 1997a and 1997b). Assuming that at least some persons who do not roll over their lump-sum distributions have smaller distributions, lower incomes, and less retirement savings, these are the people who need to save for retirement most—those most at risk of retiring without sufficient savings—who are cashing out their lump-sums most frequently.

Some view the leakage of employment-based retirement savings through in-service access and lump-sum distributions as necessary in order to allow individuals more control and responsibility with respect to their own earnings. In addition, others have claimed that preretirement access can actually increase retirement savings if it is used to make investments such as a

home purchase or the participant's own education. Finally, some employers believe that offering employees preretirement access entices them to save in the first place, which then encourages them to contribute to retirement saving after they have met their more immediate consumption needs.⁷⁵ However, others have dismissed the allowance of lump-sum distributions cashouts and preretirement access to funds as simply bad public policy (Blitzstein, 1997). Moreover, the justification of federal tax expenditures for employment-based plans is also an issue.⁷⁶

Looking Forward

Tax Policy Change

Capital Gains

As a result of the Taxpayer Relief Act of

1997, the maximum tax rate on net capital gains (i.e., the excess of net long-term capital gains over net short-term capital losses) will be reduced in two ways. For certain net capital gains, the maximum rate is reduced from 28 percent to 20 percent. Second, the maximum tax rate is further reduced to 18 percent for net capital gains on property held more than five years.⁷⁷ The increased differential between tax rates on ordinary income and capital gains may cause some employees to rethink their strategy of choosing elective deferrals, especially as they near retirement age. However, the net impact of the new tax bill for these individuals is mitigated to some extent by the permanent repeal of the 15 percent excise tax on excess distributions and excess retirement accumulations that applied for annual distributions from most retirement plans (including IRAs) in excess of \$160,000 (indexed for inflation).⁷⁸ In the long term, the capital gains modifications may reduce the aggregate demand for DC plans relative to DB plans. This would occur if enough highly compensated employees perceive that their net retirement accumulations will be maximized if at least a portion of the elective deferrals that would

otherwise be allocated to the qualified retirement plan sector were held (long term) in individual securities or mutual funds with low turnover. This would most likely apply to portions of elective deferrals not eligible for employer matching contributions under the plan formula.

Flat Taxes and Consumption Taxes

Various flat tax and consumption tax proposals, which would radically alter the way that the federal government collects tax revenues, have been proposed. Although the details vary from proposal to proposal (and some proposals lack detail), some fundamental elements are basic to most. These are: the tax would be based on consumption rather than income; consumption would be taxed only once; and all consumption would be taxed at the same "flat rate." Employment-based retirement income programs would generally lose their tax-preferred status. This means that employer expenditures for retirement programs would be subject to immediate taxation. Many analysts automatically assume that such tax changes would signal the end of the employment-based retirement system; however, such results are far from clear. Employers offer such benefit plans for reasons other than preferential tax treatment, such as work force management.⁷⁹

⁷⁵ For a more in-depth discussion of the issue, see ERISA Industry Committee (1996).

⁷⁶ For a detailed discussion of this topic, see Salisbury (1994).

⁷⁷ This applies only for assets whose holding period begins (e.g., by purchase) after December 31, 2000.

⁷⁸ Special provisions were available for lump-sum distributions.

⁷⁹ See "Employee Benefits in a Flat Tax or Consumption Tax World," EBRI Notes, no. 9 (September 1995): 1-11 for an examination of the specifics of congressional proposals and an exploration of the issues that such potential tax changes raise for employers to consider. See also Dallas L. Salisbury, ed., Tax Reform: Implications for Economic Security and Employee Benefits (Washington, DC: Employee Benefit Research Institute, 1997) for multiple perspectives on this topic, including labor, employer, consultant, actuary, and lawyer practitioner.

Small Business Job Protection Act of 1996

SIMPLE Plans

In August 1996, President Clinton enacted the Small Business Job Protection Act (SBJPA '96). This legislation contained numerous changes in pension law and established the new savings incentive match plan for employees (SIMPLE) for employers with 100 or fewer workers. It is anticipated that more small employers will adopt SIMPLE plans than those who used simplified employee pensions (SEPs) under existing law. With some exceptions, SBJPA gives employers the alternative of matching employees' before-tax contributions dollar for dollar, up to 3 percent of compensation, or providing a nonelective contribution of 2 percent of compensation. Until more is known about which alternative employers will elect, it is difficult to predict whether the absence of nondiscrimination rules (including top-heavy rules) will lead to a proliferation of plans with little participation on the part of lower-income employees.

Discrimination Testing

The creation of a safe harbor for ADP/ACP⁸⁰ testing provision in SBJPA '96 is almost certain to have an impact on the relative desirability of private-sector DC plans. Beginning in 1999, a 401(k) plan sponsor will no longer need to perform annual nondiscrimination tests for elective contributions if one of two safe harbor tests is satisfied. Moreover, ACP testing will not be required for matching contributions (however, it will still be required for employee after-tax contributions) if two provisions are satisfied.⁸¹ This administrative relief may create an opportunity for increased demand for DC plans for those employers who considered adopting 401(k) plans in the past but were opposed to the administrative detail and uncertainty concerning compliance with the ADP/ACP tests. SBJPA '96 also eliminated the so-called combined plan limit for plan years after 1999—another important change. Currently, if an employer sponsors both a DB and a DC plan covering the same participants, it is not allowed the full sec. 415 compensation limit on

both plans.⁸² In many cases, this has resulted in plans with primary DB plans and secondary DC plans, limiting the contributions to the secondary plan. The elimination of sec. 415(e) should increase DC contributions among these plans, and may make it feasible for the creation of more secondary plans among employers that found this provision too constricting in the past.

With respect to the public sector, the Taxpayer Relief Act of 1997 (TRA '97) exempts state and local governmental plans from several of the nondiscrimination tests;⁸³ in the case of sec. 403(b) plans, contributions (other than those made under a salary reduction agreements) are also exempt.⁸⁴

Highly Compensated Employees

A final change brought about by the SBJPA '96 dealt with the definition of a highly compensated employee. This definition is necessary to establish that a qualified plan is nondiscriminatory. The new definition is much more understandable than its precursor in TRA '86. While this has no obvious advantage for DB or DC plans, it is likely that the simplicity will have the largest impact on small employers and, given their historical preferences for DC plans, this may have a marginal increase in the overall demand for DC plans.

Taxpayer Relief Act of 1997

Full-Funding Limits Increase

Effective for plan years beginning after December 31,

⁸⁰ Actual deferral percentage/actual contribution percentage.

⁸¹ The safe harbors are relatively technical and beyond the scope of this report. For complete details, see Appendix B of *Employee Benefit Research Institute, Fundamentals of Employee Benefit Programs, Fifth edition* (Washington, DC: Employee Benefit Research Institute, 1997).

⁸² This is a very technical topic and beyond the scope of this report. For complete details, see pages 88-9 of Allen, et al. (1997).

⁸³ Specifically, they are exempt from the minimum coverage, nondiscrimination, ADP and ACP tests, and minimum participation rules.

⁸⁴ Specifically, they are exempt from minimum coverage rules, nondiscrimination rules (including the ACP test), and the minimum participation rule.

1998, the full-funding limit will gradually increase from 150 percent to 170 percent. This will allow sponsors of plans with funding ratios higher than 150 percent to increase (perhaps from zero) the deductible contributions to the plan, at least in the short term. This will increase the amount of funding flexibility for well-funded plans, but not necessarily to the extent that existed prior to the enactment of OBRA '87. Nevertheless, it is likely that increasing the full-funding limits will increase the relative demand for DB plans relative to DC plans, and it will almost certainly result in increased funding for some existing DB plans.

Employer Stock Investment Limitations

Effective for plan years beginning after December 31, 1998, 401(k) plans will be subject to a provision limiting investment in employer stock or real property for employee elective deferrals. There are several exceptions that limit the applicability of this ban. For example, it does not apply to employee stock ownership plans (ESOPs), and it is based on a 10 percent test across *all* qualified plans and a 1 percent of compensation test. However, for those plans that are impacted by the new limits (e.g., an employer that only sponsors a 401(k) plan and requires elective deferrals to be invested in employer stock), the motivation to continue to sponsor this type of DC plan may be reduced significantly.

IRA Modifications

Effective for tax years beginning after December 31, 1997, IRAs will be expanded in several ways, including the creation of a new back-loaded "Roth IRA."⁸⁵ Although it is not likely that these changes will impact an employer's desire to sponsor a DB or a DC plan, there is one modification that may impact the amount of contributions that some employees (typically the non highly compensated employees) are willing to contribute to

401(k) plans. Unlimited penalty-free withdrawals will now be allowed from all IRAs before age 59½ for college education expenses, and penalty-free withdrawals up to \$10,000 will be allowed for first-time home purchase.

Conclusion

Despite the many changes in government regulation regarding DB plans and the increased

prevalence of DC plans, DB plans are still an important part of both the private and public retirement systems. The data in this *Issue Brief* show that DB plans are firmly entrenched in large companies and in plans covered by collective bargaining agreements. It is unlikely that many of these plans will be shifted—at least completely—to DC plans.

These historical trends—the stability of the large DB system, the growth of the DC system, and the decline in small DB plans—all lead to the question of what will be the future of DB and DC plans. It seems clear that, for the majority of large employers, large DB plans will remain the basic component of the retirement system for long-service employees, and employers of all sizes will continue to use DC plans for employees with all lengths of tenure.

However, the dynamics of government regulation, individual preferences, and the performance of capital markets make it difficult to predict the future roles of DB and DC plans. During the 1980s and the first half of the 1990s, despite increasing regulatory complexity and cost, reduction in marginal tax rates, increased minimum required contributions for underfunded plans, and tighter maximum contribution limits, large private employers continued to offer DB plans. Policy enacted in the future could provide incentives to encourage sponsorship of DB plans and/or DC plans, or it could discourage plan sponsorship.

Historical data on plan and participant trends

⁸⁵ For details on all of the IRA modifications, see Paul Yakoboski, "IRAs: It's a Whole New Ballgame," EBRI Notes, no. 9 (Employee Benefit Research Institute, September 1997): 1-4.

document the stability of DB plans among large employers, the decline in both DC and DB plans among very small employers, and the increased prevalence of DC plans as primary and supplemental plans. Employers will continue to sponsor both DB plans and DC plans because of the unique benefits offered by each plan type. As the composition of the work force becomes more diverse, employers will likely respond by continuing to offer both DB and DC plans, as well as hybrid plans, in order to appeal to a broader range of employees.

Although the relative importance of DB and DC plans in the future depends on too many unpredictable factors to permit a full evaluation of the relative growth of these plans, this *Issue Brief* has taken a first step in attempting to analyze the level of contributions committed to both plan types. The results suggest that, at least for single-employer private retirement plans with at least 100 participants, employers' contributions to DC plans have increased relative to DB plans significantly more than could be explained by employment shifts since 1985. After controlling for the impact of firm size, unionization, and industry composition, the percentage of total contributions devoted to DC plans increased 11 percentage points between 1985 and 1993. While this is an aggregate measure that does not control for the differential impact of various governmental constraints on plan sponsors (e.g., the full-funding limit modifications in 1987), it does provide insight into the degree to which retirement benefits are being financed in increasing measure through the DC approach. A significant portion of this movement may be attributed to DC plans with the 401(k) feature. In fact, after controlling for the features mentioned above, aggregate contributions to these plans increased 15 percentage points between 1985 and 1993. It is clear from the data in this *Issue Brief* that some of this gain came at the expense of DC plans without 401(k) features; however, most of it was a direct substitute for DB plans.

In sum, the pension system is strong and continues to grow. More workers are earning vested rights in plans than at any other time in history. The

aging of the population suggests that both employers and employees will continue to find value in employment-based DB and DC plans.

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